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2023

Developing a Governance Framework for a Commercially Successful, Inclusive, and Safe Metaverse

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Hamady Dia

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Walden University
2023

Abstract

Developing a Governance Framework for a

Commercially Successful, Inclusive, and Safe Metaverse

by

Hamady Dia

MS, SIT Graduate Institute, 2010

BS, Boston University, 2005

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

Walden University

August 2023

Abstract

This study aimed to fill a significant gap in the literature on empirical research on the governance structure of the Metaverse. The purpose of this study was to describe Metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance structure for the Metaverse. This study used a multiple case study design to collect data from a purposeful sample of eight Metaverse experts using a semistructured interview format. This study was framed by three key concepts: Rogers's concept of diffusion of innovations, Ball's concept of the Metaverse, and Fernandez and Hiu's concept of privacy, ethics, and governance in the Metaverse. Twelve themes emerged from the analysis of the data: (a) the Metaverse as disruptors across all industries, (b) human adoption and collaboration as drivers of future business innovation in the Metaverse, (c) the challenge of interoperability across public and private platforms, (d) global network of stakeholders that fosters a holistic and innovative approach to data governance, (e) governance framework that creates value for the consumer, (f) centralized and decentralized options for governance, (g), advantages and challenges of user control over personal data, (h) collaborative policies as regulators of human behavior in the Metaverse, (i) multi-stakeholder generated Metaverse security and privacy policy, (j) policies that regulate user-generated content, (k) incorporation of diversity, equity, and inclusion principles for organizations operating in the Metaverse, and (l) accessibility to all consumers. This study's result may drive positive social change by presenting practical information on developing a governance framework to regulate the Metaverse.

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Dedication

I am grateful to my parents: my dear father Bocar Dia for his kindness and generosity; my dear mother Khadijetou Kane who sacrificed so much so that my siblings and I receive the best education and life possible. I would not have achieved this goal without your love, unwavering support, and encouragement. You are my role model!

To my dearest departed grandmother Anna Yaya Kane, your spirit will always be with us. I miss you so much! To my uncle Cheikh Kane, whose support and guidance during my formative years was crucial to me. To my uncle Hassimiou Dia, thank you for having always been there for me, for listening to me, and for understanding me when others could not. I admire your resourcefulness.

To my friend, the "Gaou", Cheikh Tandia, thank you for being a loyal and trusted friend. You and I have been through a lot of great adventures together. You will have to address me with Dr. Dia moving forward! Many thanks to my brothers and sisters and their respective families: Aissata Dia, Hassimiou Dia, Moctar Dia, Fatimata Dia and Aminata Dia for your support and encouragement. To my dear friend and mentor Donnie Womack, thank you for your mentorship, support, and guidance throughout the years. To my friend and brother Dexter Daniel, whose dedication to helping the less fortunate is a constant reminder of what being of service to others is all about, you are an inspiration!

Finally, to my dear son Sheikh Dia whose favorite place to hangout is Roblox, I am proud to be your father. Your joie de vivre, mischievous nature, and playfulness has been a source of strength and inspiration to me. Despite my valiant efforts with this study, I humbly cede to you the title of "top Metaverse expert" in the "Dia" household.

Acknowledgments

First, I would like to acknowledge the immeasurable contribution of my first Committee Chair Dr. Daphne Halkias to the successful completion of my PhD dissertation. Although no longer a faculty member at Walden University, Dr. Halkias was instrumental in making the dissertation phase of my PhD journey one of the best learning experiences of my life. Throughout the duration of her tenure as my chair, Dr. Halkias showed genuine interest in me as a student and a person, guided me, encouraged me, provided me with positive and constructive feedback, and always challenged me to adhere to the highest academic standards. Dr. Halkias, you are an amazing teacher, coach, and human being! Thank you for all that you have done for me! I promise that I will pay it forward.

To my second Committee Chair Dr. LaBrina Jones, thank you for accepting to be my second chair while I was in the middle of the dissertation process. Thank you for making the transition phase as smooth as it was. Thank you for your support and guidance through the completion of the two remaining chapters of the dissertation.

To Dr. Mohammad Sharifzadeh, thank you for accepting to be my committee member and for your feedback, support, and guidance throughout the process. To Dr. Kenneth Levitt, the university research reviewer (URR) faculty member, thank you for reviewing my dissertation and for your contribution to the successful conclusion of the dissertation. Finally, thank you to all the faculty members and staff of Walden University for their support throughout this fulfilling PhD journey.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

The Metaverse has been defined as "a massively scaled and interoperable network of the real-time rendered 3D virtual world that can be experienced simultaneously and persistently by an effectively unlimited number of users with a unique sense of presence and with continuity of data" (Ball, 2022, pp. 28-29). According to Ball (2022), one of the critical features of the Metaverse is that it is based on virtual worlds simulating the real world and generated by a computer. The potential for organizations to adapt their business models and operational capacity to function on the Metaverse is significant, with transformational impacts on marketing, tourism, leisure and hospitality, citizen-government interaction, health, education, and social networks (Ball, 2022; Li, 2022). The Metaverse represents a strategic opportunity for a wide range of stakeholders because of the expectation that it will become the next dominant computing platform, causing future economic and social transformations similar to those of the internet and mobile web (Entsminger et al., 2022; Ning et al., 2022).

Technology innovation scholars and futurists have quickly identified several critical ethical problems with the developing Metaverse, specifically related to data security, regulation, safety, and the platform's negative impact on vulnerable social groups (Andersen & Raine, 2022; Harvard Business Review et al., 2022). At the same time, business leaders and policymakers still cannot agree on a governance framework for the Metaverse raising new questions of governance, access, ethics, and security (Andersen & Raine, 2022; Hackl et al., 2022). Corporate leaders may fear Metaverse application because of security issues leading to exposure of accusations of unethical

corporate behavior (Dwivedi et al., 2022; Zhang, 2022). In this context, a literature gap

exists that must be addressed with more empirical research on the nature of the Metaverse

and how business leaders and policymakers may collaborate on a governance framework

to launch an inclusive and safe Metaverse to support the future of business innovation

(Bibri, 2022; Schmitt, 2022). Empirical research on the Metaverse's ethical challenges

may drive positive social change by preventing the digital domain from repeating the

abuses and injustices of artificial intelligence (AI) and social media identified by

technology scholars and policymakers over the last 15 years (see Entsminger et al., 2022;

Zhang, 2022).

       This chapter presents an introduction and background of the study, the problem

statement, the purpose of the study, the research question, the conceptual framework, and

the study's nature. The chapter also includes the definitions, assumptions, scope and

delimitations, limitations, and significance of the study, and the summary of Chapter 1.

Background of the Study

       The Metaverse is a scientific and technological activity that is socially

constructed, politically driven, economically conditioned, and historically situated (Bibri,

2022). Due to the problematic nature of the Metaverse in terms of its inherent ethical and

social implications, there need to be more explicit processes and practices for enhancing

public participation. This activity allows a more democratic public role in its shaping and

control, especially early in the decision-making process of its development—when the

opportunity for adequate inputs and informed choices exists. Technology innovation and

future studies scholars agree on the transformative effect of the Metaverse in terms of its

impact on how people conduct business, interact with brands and others, and develop shared experiences. Nevertheless, the inherent ethical and social implications of the Metaverse's development still remain largely unexplored in the extant literature (Fernandez & Hui,2022).

Dwivedi et al. (2022) conducted an exploratory study combining the informed narrative and multi-perspective approach to many aspects of the Metaverse and its transformational impact. The authors proposed a future research agenda valuable for researchers, professionals, and policymakers. Schmitt (2022) conducted a bibliometric review of the term "metaverse" based on the Scopus database to examine the building blocks of the Metaverse, raise awareness of its technologies, explain avatars, content creation, the virtual economy, its use cases, and evaluate the risks and challenges for businesses, governments, and broader society. The study reveals that the Metaverse's potential impact is massive and will profoundly shape humanity's future, but a tangible final version is difficult to predict. Further research is needed for Metaverse's potential challenges for all stakeholders involved in its development (Enthsminger et al., 2021; Schmitt,2022).

Fernandez and Hui (2022) proposed a preliminary modular-based framework for the ethical Metaverse design, focusing on the three central pillars guiding Metaverse development: privacy, governance, and ethical design. The development status of the Metaverse can be defined and assessed from five different perspectives: network infrastructure, management technology, basic standard technology, virtual reality object connection, and virtual reality convergence leading to a technical framework of the

Metaverse. Technology researchers predict that with the first application areas of the Metaverse and some of the problems and challenges, policymakers and business leaders will face in establishing functioning rules for the Metaverse (Ning et al. 2022).

Metaverse platforms with collaborative features are feared among internet users due to the potential for employee harassment — a continuing challenge in the workplace (Beioley, 2022; Hirsch, 2022). Additionally, a significant technology management obstacle to a full-functional, interoperable Metaverse remains unsolved in that the cost of the computing infrastructure and power requirements for a full-fledged, functional Metaverse has yet to be agreed on between business leaders and policymakers (Upadhyay & Khandelwal, 2022; Warin, 2022). Meanwhile, business leaders and policymakers still cannot agree on a governance framework for the Metaverse raising new questions of governance, access, ethics, and security (Andersen & Raine, 2022; Hackl et al., 2022). A significant gap in the literature exists on best practice strategies for business leaders and policymakers to collaborate on a governance framework to launch an inclusive and safe Metaverse strategy to support the future of business innovation (see Bibri, 2022; Schmitt, 2022).

Problem Statement

The Metaverse will help to introduce new business models and further extend digital business and estimates of value creation opportunities brought by the Metaverse by 2030 will be approximately 5 trillion dollars (McKinsey & Company, 2022; Schmitt, 2022). As scholars, business leaders, and policymakers work at global economic, social, and business forums to move the Metaverse past its conceptual nature, these stakeholder

groups agree there are many misunderstandings amongst them on the challenges and risks it may bring to businesses, regulators, and society (Li, 2022; Purdy, 2022). With the Metaverse developing faster than predicted, technology innovation scholars and futurists have had to quickly identify its critical ethical problems related to data security, regulation, safety, and the negative impact on vulnerable social groups (Andersen & Raine, 2022; Harvard Business Review et al., 2022; Lee et al., 2021). The social problem is that business leaders and policymakers building the Metaverse ecosystem still lack consensus about what the new medium will represent while identifying challenges of governance, access, ethics, and security (Andersen & Raine, 2022; Hackl et al., 2022; Iqbal & Campbell, 2022).

A recently published business report highlighted the critical concerns amongst internet users worldwide with working within Metaverse applications, including addiction to simulated reality, privacy, and mental health issues (Statista, 2021). Beyond assumed fears of working in the Metaverse, initial users report exposure to offensive and undesirable behaviors, harassment of users, unregulated gambling, sexualization of avatar interactions, and personal data exploitation (Buck & McDonnell, 2022; Hoover, 2022; Smaili & de Rancourt-Raymond, 2022). Due to the lack of practical information on developing a Metaverse ecosystem within business organizations, innovation management and strategy scholars identified a significant gap in the literature on empirical research on how business leaders and policymakers may collaborate on a governance framework to launch an inclusive and safe Metaverse strategy to support future of business innovation (Bibri, 2022; Schmitt, 2022; Upadhyay & Khandelwal, 2022). The

specific management problem is that business leaders and policymakers have sparse information on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation (Fernandez & Hui, 2022; Floridi, 2022; Signe & Dooley, 2022.)

Purpose of the Study

The purpose of this qualitative, multiple case study was to describe Metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation**.** Lack of verified knowledge makes it difficult to determine whether and how business leaders and policymakers may collaborate on shaping a governance framework for a secure Metaverse ecosystem that may support future business innovation. Using criterion and network sampling to conduct semistructured interviews with eight experts knowledgeable about the central topic of the study yielded rich answers to the central research question while also emphasizing the experts' perspectives that affect social practices in a field of action (Döringer, 2021). Given the open nature of qualitative expert interviews, I answered my research question by collecting data from experts' breadth of knowledge and experience in a newly emerging research field (Littig & Pöchhacker, 2014) along with archival data and reflective journal notes to drive the trustworthiness of the multiple case study findings through data triangulation (Guion et al., 2011; Halkias & Neubert, 2020).

Research Question

How do Metaverse strategy and innovation management experts describe how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation?

Conceptual Framework

This study was framed by three key concepts that focus on the significance of developing empirical research on how business leaders and policymakers may collaborate on a governance framework to launch an inclusive and safe metaverse strategy to support the future of business innovation (Bibri, 2022; Schmitt, 2022; Upadhyay & Khandelwal, 2022): (a) Rogers's (1995) concept of *diffusion of innovations*, (b) Ball's (2022) concept of the *Metaverse*, and (c) Fernandez and Hiu's (2022) concept of *privacy, ethics, and governance in the Metaverse.*

Diffusion of Innovations

Rogers's (1995) definition of the *diffusion of innovation* explains it as an idea, a practice, or an object that an individual or other adopter perceives as new. Rogers (1995) considered the processes of innovation development and decision, the attributes of innovations as well as their adoption rates, the various categories of adopters, and topics related to leadership and change agents and innovation in firms. Rogers grounded his scholarly work on diffusion of innovation in Schumpeter's economic development theory, where "development" is a distinct phenomenon that forever alters and displaces the existing equilibrium state and regards knowledge and technology as public goods that

develop independently of the economic system (Schumpeter, 1934). Ildas (2022) explained the Metaverse universe within the framework of Rogers's diffusion of innovation based on the timing of societies and individuals to adapt to innovations (Rogers, 1995).

The Metaverse

Ball (2022) defined the *Metaverse* as "a massively scaled and interoperable network of the real-time rendered 3D virtual world that can be experienced simultaneously and persistently by an effectively unlimited number of users with a unique sense of presence and with continuity of data" (pp. 28-29). According to Ball, one of the critical features of the Metaverse is that it is based on virtual worlds. A virtual world is a simulation of the real world generated by a computer. For Ball, "these environments can be in immersive 3D, 3D, 2.5 D (also known as isometric 3D),2D, layered atop the "real world" via augmented reality, or purely text-based, as in the game-like MUDs and non-game like MUSHs of the 1970" (p. 29). Several recent studies have emphasized the significance of virtual worlds in the functioning of the Metaverse (Akour et al., 2022; Shin & Kim, 2022).

Privacy, Ethics, and Governance in the Metaverse

Fernandez and Hiu (2022) examined the privacy, governance, and ethical challenges that the builders of the Metaverse will face and proposed a preliminary modular-based framework as an ethical design for the Metaverse. Recent studies about the Metaverse have shown that data security and the safety of metaverse users are some of the main challenges that need to be resolved to protect metaverse users (Dwivedi et al.,

2022; Fernandez & Hiu, 2022). According to Fernandez and Hiu, the data collected from extended reality (XR) devices and head-mounted displays (HMDs) of Metaverse users or the behavior and communication of the avatars in the virtual world contain sensitive information about users that need to be protected from cybercriminals. In addition, the way devices such as HMDs are currently used to access the Metaverse presents physical safety risks for Metaverse users and bystanders present around them. Dwivedi et al. (2022) remarked that, in addition to the data security and privacy concerns, the devices currently used in the Metaverse and the network on which the Metaverse operates are not secured. The conceptual framework will be discussed in greater detail in Chapter 2.

Nature of the Study

To ensure that the method was aligned with the purpose of this research and provided adequate data for the research question, the nature of this study was qualitative (see Tracy, 2019). The qualitative approach was utilized because it is suitable for the "naturalistic perspective and interpretive understanding" of human experience and expectations (Denzin & Lincoln, 2013, p. 10). Given that the purpose of the study required an in-depth exploration of Metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem, an emerging research topic, I applied an exploratory, multiple case study design (see Yin, 2017).

Qualitative research aligns with a worldview through the lens of the constructivist paradigm, and it can be used to explore specific knowledge and experiences within a

social setting (Cooper & White, 2012). I determined that the quantitative research method did not apply to this study's purpose because a qualitative research design does not test any statistical relationship or develop mathematical relationships between experimental variables (Harkiolakis, 2017). According to Yin (2017), a multiple case study investigation allows the researcher to investigate phenomena through a replication strategy (Halkias et al., 2022).

Yin (2017) also noted that the multiple case study design investigating a social phenomenon could entail an individual within a specific context as a separate unit of study. This study's central phenomenon is the individual, and the unit of analysis is the Metaverse strategy and innovation management expert. In developing a study of individuals living within a community and not the whole community itself, the optimum qualitative design with the goal of theory extension was an exploratory, multiple-case study design (Eisenhardt & Graebner, 2007). Participants for this multiple case study were recruited using purposeful criterion and network sampling strategies (see Halkias & Neubert, 2020; Tracy, 2019).

Expert interviews are considered a standard research method in the qualitative paradigm (Bogner et al., 2018; Littig & Pöchhacker, 2014). Experts possess the specific knowledge to help meet the study's purpose. In exploratory studies, expert interviews are more efficient in generating the desired data (Bogner et al., 2018). Even though the interviews were developed as semistructured, the nature of exploratory expert interviews allowed for the generation of rich data from the experts' knowledge of an under researched field (see Littig & Pöchhacker, 2014). Interviewing subject matter experts

allowed me to collect in-depth data that reach data saturation with the appropriate sample size (see Merriam & Tisdell, 2015).

Schram (2006) recommended a range of five to 10 participants for a qualitative study, stating that larger sample sizes could be a barrier to an in-depth, qualitative investigation. Utilizing the multiple case study design, I implemented the cross-case synthesis method for data analysis and generated themes representing the convergence and divergence of participants' experiences within and between cases (Yin, 2017). I triangulated interview data themes with data from the extant scholarly literature, reflective field notes, and archival data in the form of current business, economic, and technology security reports on Metaverse development for organizations, its promised governance framework, Metaverse privacy, and security issue and how the Metaverse will safely drive future business innovation, to enhance the trustworthiness of findings and make suggestions for further research (Guion et al., 2011).

Definitions

3D (Three-dimensional) virtual world: This term refers to a three-dimensional computer-generated environment where multiple users can interact in real-time for different purposes, utilizing virtual alter egos called avatars (Dionisio et al., 2013).

Augmented reality (AR): This term refers to the technology that allows the enhancement of the real world by projecting digitally enhanced visual objects onto it (Sofianidis, 2022).

Augmented virtuality (AV): This term refers to the virtual environment enhanced by real objects (Milgram & Kishino, 1994).

Avatar: This term refers to the virtual alter ego of an individual that represents the user in the interactions with other users in the virtual world (Park et al., 2022).

Blockchain technologies: This term refers to the technologies that allow users in a decentralized database to execute, track and validate decentralized and permanent transaction records, also called "smart contracts." With blockchain technology, new data can be added only if there is consensus among peers (Goldsby & Hanisch, 2022).

Cryptocurrency: This term refers to a digital currency used as a substitute for cash. One of the main characteristics of cryptocurrencies is their decentralized governance structure. Cryptocurrencies are generated by individuals in peer-to-peer (P2P) networks and are exchanged directly between peers without the mediation of banks or the control of any government, nation, or regulatory agency (Biscontini, 2022a).

Decentralized autonomous organizations (DAOs): This term refers to blockchain-based democratized organizations made possible by the contribution of all the participants in a network. The flat, decentralized governance structure of DAOs promotes the participation of all peers and relies on smart contracts that can be verified by anyone in the network (Santana & Albareda, 2022; Fernandez & Hiu, 2022).

Decentralized application (dApp): This term refers to applications that operate over decentralized networks based on blockchain, which allows for the storage and security of smart contracts. There are two types of dApps: platforms dApps that authorize other dApps to operate within their ecosystem and single functionality dApps that do not authorize other dApps to function inside their ecosystems (Hackl et al.,2022).

Digital twins: This term refers to a digitally constructed virtual entity using a physical entity's historical and real-time sensing data (Wang et al., 2022).

Extended reality (XR): This term refers to the umbrella term that encompasses the range of realities made possible by immersive technologies such as virtual reality (VR), augmented reality (AR), augmented virtuality (AV), mixed reality (MR) (Milgram & Kishino, 1994).

Head mounted displays (HMDs): This term refers to units that project images and are mounted on the head. HMDs are composed of helmets and CRT (small liquid crystal display LCDs) inside a pair of goggles (Shibata, 2002).

Internet of Things (IoT): This term refers to a network of physical devices that use sensors to collect data from the real world and exchange information over the internet in real-time (Garrido et al., 2022).

Metaverse: This term refers to a virtual world resembling the real world in which users interact through their avatars (Dwivedi et al., 2022).

Massively multiplayer online role-playing games (MMORPGs): This term refers to video games played inside a virtual world: Inside MMORPGs, players interact with each other via their avatars (Belanger & English, 2018).

Mixed reality (MR): This term refers to the reality in which the user's experience combines real and virtual objects (Milgram et al., 2015).

Non-fungible tokens (NFTs): This term refers to the digital rendition of an asset, such as an image, a photo, or a video clip, written in a smart contract. The NFTs are traded using cryptocurrencies (Chandra, 2022).

Peer-to-peer (P2P) networks: This term refers to the decentralized networks that are alternatives to the traditional server-style networks used for sharing files across computers (Biscontini, 2022b).

Privacy enhancing technologies (PETs): This term refers to technologies such as homographic encryption, created to enhance internet users' privacy and developed on infrastructures based on privacy-by-design principles and policies (Garrido et al., 2022).

Smart contracts: This term refers to a contract whose clauses consist of computer programs that become automatically executed when specific predetermined stipulations are realized. Smart contracts do not involve transaction costs, unlike conventional contracts that necessitate a third party to be executed (Zheng et al.,2020).

Virtual economy: This term refers to "the process of exchanging virtual items and services with virtual currency within a virtual world" (Nazir & Lui, 2016, p.2).

Virtual reality (VR): This term refers to an artificial virtual experience in which the user is immersed in a 3D space and insulated from the physical environment (Rauschnabel et al., 2022).

Web 3.0: This term refers to the next evolution of the internet powered by blockchain technology that enables technologies such as cryptocurrencies NFTs, and metaverses (Murray et al., 2022).

Assumptions

Assumptions are characteristics of the research that are presumed to be factual and assumed to be unquestioned (Theofanidis & Fountouki, 2018). This study was grounded on four assumptions. The first assumption was that participants would

understand the questions and provide truthful answers to the questions. The data were collected using open-ended interview questions to Metaverse experts using defined selection criteria. Ravitch and Carl (2021) remarked that one of the characteristics and values of qualitative interviews is that they are person-centered. As an interviewer, I considered the participants as the experts of their own experience. In addition, I established trust with the participants, paid attention to any adverse effect I may have had on them and adjusted accordingly. Furthermore, I addressed any transparency and ethical issues to create a sense of comfort between the participant and me.

The second assumption was associated with using the multiple case study design. One of the advantages of the multiple case study approach is the opportunity to use different sources of evidence and data triangulation (Yin, 2017). In addition, the multiple case study allowed for the use of replication logic (Halkias et al., 2022; Yin, 2017).

The third assumption concerned my role as the researcher and the instrument of the research (Ravitch & Carl, 2021). Halkias et al. (2022) remarked that a defining characteristic of multiple case study research is the researcher's deep immersion in the phenomenon. That is why I was mindful of my identity, positionality, biases, and subjectivities as I undertook the research project. Ravitch and Carl (2021) noted that researchers in qualitative studies put on different identities during the research process. Therefore, researchers must be aware of these shifting identities and act accordingly to be successful. For example, throughout the research process, I constantly reflected on my own values and biases and considered how they can affect both the process and the research results.

The fourth assumption was that this study would be conducted rigorously. According to Ravitch and Carl (2021), to achieve rigor in qualitative research, the research needs a have a complex design with clearly defined steps, be aligned with the research questions and data collection methods, have results that accurately reflect the participants' experiences, and be transparent by addressing all the challenges including those related to the role of the researcher (see the third assumption). Yin (2017) remarked that to conduct case study research correctly, one must take the necessary precautions to avoid confusion of the case study with non-research case studies (e.g., popular literature case studies, teaching-practice case studies, and case records). That entails highlighting all the procedures of the method and documentation, especially how fairly the evidence is being reported, and being transparent on how one intends to limit or eliminate any biases such as the "experimenter effect" or designing "unbiased" interview questions.

Scope and Delimitations

Delimitations refer to constraints on the study intentionally set up by the researcher (Theofanidis & Fountouki, 2018). The scope of this study was to describe the views of Metaverse experts on how business leaders and policymakers may collaborate on shaping a governance framework for the Metaverse. This study used a multiple case study research design. Merriam and Tisdell (2015) remarked that the essential characteristic of case study research is its ability to define the object of the study, namely the case. In this study, the case is the individual (Yin, 2017). This being a multiple case study, it is the unit of analysis that characterizes the case (Merriam & Tisdell, 2015).

The unit of analysis of this study is the Metaverse experts. The views of the Metaverse experts helped advance the understanding of the subject and accomplish the stated goals of the research. According to Yin (2017), the constructivist approach of seeking the perspective of different participants would provide different meanings that would expound the research topic. One of the characteristics of the multiple case study approach, and its advantage over the single case study approach, is the opportunity it provides the researcher to use replication logic (Halkias et al., 2022; Yin, 2017). Replication happens when the researcher analyzes the research question within each case and then tries to replicate the insights in the other cases (Halkias et al., 2022)

According to Yin (2017), bounding the case entails distinguishing the persons included in the case from those outside it. For this study. I recruited eight subject matter experts who met the following inclusion criteria: adults over the age of 18 who (a) have authored at least five peer-reviewed scientific papers or policy reports on the issue of developing a Metaverse ecosystem for organizations, Metaverse governance framework development, and Metaverse security/privacy concerns; (b) hold a terminal degree from an accredited institution; and (c) possess in-depth expert knowledge regarding the central topic of the study(see Merriam & Tisdell, 2015).

This study was also bound by the extant literature on the Metaverse. The Metaverse, in its current incarnation, is an evolving phenomenon. The advent of web 3.0 has dramatically changed the conceivability and the possibilities of the Metaverse. Web 3.0 has enabled technologies such as blockchain, cryptocurrencies, NFTs, and DAOs that will constitute the building blocks of the new Metaverse (Ball, 2022; Dwivedi et al.,

2022; Murray & Combs, 2022). Unfortunately, all these phenomena are currently functioning outside the jurisdiction of any nation, government, or international organization (Dwivedi et al., 2022; Fernandez & Hui, 2022). Although there are positive aspects to the decentralized nature of the governance structure of these technologies (i.e., cryptocurrencies, DAOs, NFTs), the lack of involvement of traditional institutions such as corporations, governments, or international organizations represents a severe impediment to the fulfillment of the promise of the Metaverse, because of the risk of harm to Metaverse users in terms of their privacy, their safety, and exposure to cyber criminality (Beioley, 2022; Hirsch, 2022; Statista, 2021).

Several researchers have identified the lack of a governance structure to address the ethical, privacy issues, and other open challenges, as a gap in the research on the Metaverse (Bibri, 2022; Fernandez & Hui, 2022; Schmitt, 2022; Upadhyay & Khandelwal, 2022). Using a conceptual framework based on Rogers's (1965) diffusion of innovation theory, Ball's (2022) concept of the Metaverse, and Fernandez and Hiu's (2022) concept of privacy, ethics, and governance in the Metaverse, this research filled a literature gap by recommending how organizational stakeholders may create a governance structure for the Metaverse that will ensure its viability and the safety and privacy of its users. The findings of this study contribute to the scholarship on the Metaverse and help point the direction to the necessary steps to achieve that goal.

Limitations

One of the limitations of this study stemmed from the selection of a qualitative approach to answer the research question. According to Ross and Zaidi (2019), "study

limitations represent weaknesses within a research design that may influence outcomes and conclusions of the research" (p.261). A qualitative study's limitation is the difficulty of extending the findings to a broader population with the same degree of certainty as quantitative approaches. I selected multiple case study as a research design to conduct this study to support the in-depth study of participants' perceptions of a phenomenon within its natural context (Tracy, 2019). A detailed audit trail was provided, and triangulation of interview responses, historical literature, and field notes was used to collect accurate data to drive the trustworthiness of this qualitative study's results (see Guion et al., 2011). Additionally, a comprehensive literature review was included in this study to support the research rationale and ensure the data collected was dependable to address the study's purpose.

A second limitation of the study was related to the data collection and analysis phases. Because interviews, observations, and archival documents are the primary methods of collecting data in cases studies (Halkias et al., 2022), some of the challenges that I anticipated in this phase were related to coding the data, interpreting the data, being aware of my role and biases as a researcher as well as the biases of the research participants (Ravitch & Carl, 2021; Ross & Zaidi, 2019).

A third limitation concerned the scarcity of research on the Metaverse. In its current incarnation, the Metaverse is a relatively new phenomenon (Dwivedi et al., 2022). The research on the Metaverse is sparse. As a researcher, I focused on selecting and reviewing pertinent literature, collecting the data in a manner that complied with

qualitative method data collection rules and regulations, and accurately interpreting the data to achieve valid, reliable results that can withstand the test of time.

A fourth limitation of this study was the selection of participants due to specific inclusion criteria that may have limited the recruitment of sufficient participants to reflect a rigorous representation of the targeted population. Transparency in the participants' responses could have constituted a limitation due to their personal bias in formulating their answers to the interview questions. Therefore, I focused on building trust between the participants and myself to obtain genuine and objective answers from the interviews (see Merriam & Tisdell, 2015)

Significance of the Study

Significance to Practice

For individuals who choose to interact with the Metaverse in the future, the nature of the transition between physical and virtual and multimodal enhancement of experiences and interactions leads to a broad scope, as yet unaddressed challenges (Mystakidis, 2022). The many challenges of an operational Metaverse originate from a sociotechnical and governance perspective, as platform providers seek to develop the capability for users, public organizations, and businesses to create virtual worlds that can be commercially successful and inclusive while also protecting users' safety and privacy (Fernandez & Hui, 2022; Floridi, 2022). The significance of my study results to professional practice is that it may inform business leaders and policymakers on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse

ecosystem to drive future business innovation (see Fernandez & Hui, 2022; Signe & Dooley, 2022).

Significance to Theory

As a result of a thorough understanding of significant trends in practice, policymakers recently identified a need for a neutral platform supported by business leaders and policymakers to develop commercially successful and socially inclusive governance frameworks to drive the future of business innovation (Lee et al., 2021; Li, 2022). Scholars contend that with the Metaverse developing faster than predicted, stakeholders need to identify its critical ethical problems related to data security, regulation, safety, and the negative impact on vulnerable social groups promptly (Andersen & Raine, 2022; Lee et al., 2021; Harvard Business Review et al., 2022). In this context, learning from theoretical works just emerging in the literature on the nature of the Metaverse for organizations and business is critical for successfully designing empirical research to address these issues after identifying the problem (Bibri, 2022; Schmitt, 2022; Upadhyay & Khandelwal, 2022). This study's results were explained through the conceptual lens of the research framework.

This study is significant to theory extension by contributing original, qualitative data to address a significant gap in the literature on empirical research on how business leaders and policymakers may collaborate on a governance framework to launch an inclusive and safe Metaverse strategy to support the future of business innovation (see Bibri, 2022; Schmitt, 2022). Guidelines and implications for researchers, businesspeople, and practitioners regarding value creation opportunities for organizations are a needed

research direction, along with outlining the risks and challenges for businesses, governments, and broader society (see Schmitt, 2022).

Significance to Social Change

This study is significant because it contributes to the management field by presenting practical information on developing a much-needed governance framework to regulate the Metaverse ecosystem that will be pervasive within public and private organizations in the future. The Metaverse's potential impact is massive and will profoundly shape humanity's future, but a tangible final version is difficult to predict. Conducting empirical research on the Metaverse's ethical challenges may drive positive social change by raising awareness of how this new digital domain can keep from repeating the abuses and injustices of AI and social media identified over the last 15 years by technology and futurist scholars (see Entsminger et al., 2022; Zhang, 2022).

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Summary and Transition

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The Metaverse represents a strategic opportunity for a wide range of stakeholders because of the expectation that it will become the next dominant computing platform, causing future economic and social transformations similar to those of the internet and mobile web (Entsmimger et al., 2022; Li, 2022; Ning et al., 2022). The purpose of this qualitative, multiple case study was to describe Metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation. Using criterion and network sampling to conduct semistructured interviews with eight experts knowledgeable about

the central topic of the study yielded rich answers to the central research question while also emphasizing the experts' perspectives that affect social practices in a field of action (see Döringer, 2021). Chapter 1 provided an overview and background for the study, the problem statement, the purpose, the research question, the conceptual framework, and the study's nature. The chapter includes definitions, assumptions, scope and delimitations, limitations, significance, and a summary.

Chapter 2 will present the three concepts adopted to frame and align with this study's purpose and the literature search strategy and review. With the literature review, I will develop a synthesis and critical analysis of the literature on topics related to ethical problems, data security, regulation, safety, and inclusion issues in the evolving Metaverse.

Chapter 2: Literature Review

The specific management problem that was addressed in this study is that business leaders and policymakers have sparse information on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation (Fernandez & Hui, 2022; Floridi, 2022; Signe & Dooley, 2022). Economists and future studies scholars estimate that the value creation opportunity brought by the Metaverse by 2030 will be approximately 5 trillion dollars (McKinsey & Company, 2022a; Schmitt, 2022). The Metaverse represents a strategic opportunity for a wide range of stakeholders to become the next dominant computing platform, causing future economic and social transformations similar to those of the internet and mobile web (Entsminger et al., 2022; Ning et al., 2022).

Technology innovation scholars and futurists have quickly identified several critical ethical problems with the developing Metaverse, such as data security, regulation, safety, and the platform's negative impact on vulnerable social groups (Andersen & Raine, 2022; Harvard Business Review et al., 2022). The challenges of an operational Metaverse originate from a sociotechnical and governance perspective, as platform providers seek to develop the capability for users, public organizations, and businesses to create virtual worlds that can be commercially successful and inclusive while also protecting users' safety and privacy (Fernandez & Hui, 2022; Floridi, 2022). At the same time, business leaders and policymakers still cannot agree on a governance framework for the Metaverse raising new questions of governance, access, ethics, and security (Andersen & Raine, 2022; Hackl et al., 2022). In this context and beyond recent

theoretical studies only touching on operational issues within the Metaverse, a literature gap exists on empirical research to produce practice and policy recommendations on how business leaders and policymakers may collaborate on a governance framework to launch an inclusive and safe Metaverse to support the future of business innovation (Bibri, 2022; Schmitt, 2022).

Chapter 2 provides the literature search strategy and the conceptual framework for this study. In the remaining chapter narrative, I present a synthesis of knowledge and critical analysis of selected literature review on topics related to the problem and purpose of the study. The chapter starts with a literature search strategy and conceptual framework sections. The literature review section is divided into the following subsections: Defining the Metaverse, Metaverse Ecosystem, History and Evolution of the Metaverse, Infrastructure and Building Blocks of the Metaverse, The Metaverse Economy, Business Opportunities of the Metaverse, Challenges of the Metaverse, and Governing the Metaverse. The chapter ends with summary and conclusion sections.

Literature Search Strategy

A literature review is a comprehensive and objective summary and critical analysis of available research and non-research on a particular topic (Cronin et al., 2008). In the literature review, researchers aim to show their knowledge about a particular topic and subject area, "including vocabulary, theories, key variables and phenomena, and its methods and history" (Randolph, 2009, p.2). Faryadi (2018) noted that the selected relevant material should be current and support the researcher's argument about the research topic.

The search strategy for this research was devised to find relevant literature to answer the proposed research question on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation. That is why I selected sources that are as current as possible. The Metaverse is a relatively new research topic; most of my selected sources were published in 2022 and 2023. In addition, I focused only on relevant material that directly addresses my research objectives of learning about the governance of the Metaverse, and the challenges of Metaverse, including safety and security, as well as ethical challenges. Below is the description of my literature review search strategy.

Keyword search is the most frequently used method to identify literature. Based on the topic and the research question, I have identified the following keywords: AI, artificial intelligence, augmented reality, avatar, blockchain, challenges, cryptocurrency, digital assets, digital commerce, digital currencies, digital transformation, ethics, extended reality, governance, immersive technology, immersive work environment, machine learning, metaverse OR virtual reality, metaverse economy, mixed reality, NFT, performance management, privacy, regulation, remote work, second life, social connection, technology policy, training and development, 3-D graphics, virtual economy, virtual human resource management, virtual work environment, virtual world, VR*, virtual recruitment, and XR technologies.

Once the keywords were identified, the search started by typing the keyword using Walden University Online library and starting with the Thoreau multiple-database

search tool first. When I could not find the desired results in Thoreau, I selected the option: "Search everything." One helpful strategy for finding relevant results was using search terms with the help of Boolean operators AND, OR, and NOT (Cronin et al. 2008). In addition, when appropriate, I used truncation to help get more relevant results by using the root word and an asterisk (e.g., "virtual*").

An important aspect of the literature review is identifying the relevant databases to the research topic. The databases I used to conduct the literature review include the Walden University Online Library and Google Scholar. Literary searches were conducted through the collections of Emerald Insight, ABI/INFORM, ACM, Business Source Complete, IEEE Xplore, Science Direct, and Sage Premier. In addition, I used two research method databases: SAGE Research Methods Online and Walden University Research Design homepage. In addition to peer-reviewed journals, I reviewed books and searched government sources such as government agency data or statistics, U.S. government agency Google search, government websites, and Business & Management related U.S. government websites.

Conceptual Framework

This study was framed by three key concepts that focus on the significance of developing empirical research on how business leaders and policymakers may collaborate on a governance framework to launch an inclusive and safe Metaverse strategy to support the future of business innovation (Bibri, 2022; Schmitt, 2022; Upadhyay & Khandelwal, 2022): (a) Rogers's (1995) concept of *diffusion of innovations*, (b) Ball's (2022) concept

of the *Metaverse* and (c) Fernandez and Hiu's (2022) concept of *privacy, ethics, and governance* in the Metaverse.

Diffusion of Innovations

Rogers's (1995) definition of the diffusion of innovation explains it as an idea, a practice, or an object that an individual or other adopter perceives as new. Rogers considered the processes of innovation development and decision, the attributes of innovations as well as their adoption rates, the various categories of adopters, and topics related to leadership and change agents and innovation in firms. Rogers grounded his scholarly work on diffusion of innovation in Schumpeter's economic development theory, where "development" is a distinct phenomenon that forever alters and displaces the existing equilibrium state and regards knowledge and technology as public goods that develop independently of the economic system (Schumpeter, 1934).

In Schumpeter's theoretical description, he searched for how innovation is driven within an economic system and how these "new combinations" disrupt the equilibrium of a steady state. Schiliro's (2022) recent conceptual research on the fast growth of the digital environment, the emergence of digital platforms, and the related development of the Metaverse was founded on the diffusion of innovative digital technologies to embrace ideas and concepts from multiple fields and integrate different research areas. Ildas (2022) explained the Metaverse universe within the framework of Rogers's diffusion of innovation based on the timing of societies and individuals to adapt to innovations (Rogers, 1995).

The Metaverse

Ball's (2022) definition of the *Metaverse* explains it as "a massively scaled and interoperable network of the real-time rendered 3D virtual world that can be experienced simultaneously and persistently by an effectively unlimited number of users with a unique sense of presence and with continuity of data" (pp. 28-29). According to Ball, one of the critical features of the Metaverse is that it is based on virtual worlds. A *virtual world* is a simulation of the real world generated by a computer. For Ball, "these environments can be in immersive 3D, 3D, 2.5D (also known as isometric 3D), 2D, layered atop the "real world" via augmented reality, or purely text-based, as in the game-like MUDs and non-game like MUSHs of the 1970" (p. 29).

Several recent studies have emphasized the significance of virtual worlds in the functioning of the Metaverse (Akour et al., 2022; Shin & Kim, 2022). Another essential characteristic of the Metaverse is that it is experienced by its users through 3D immersion. According to Ball (2022), "Metaverse theorists argue that 3D environments are required to make possible the transition of human culture and labor from the physical world to the digital one" (p. 33). The realization of the Metaverse will require real-time rendering to enhance the experience of the Metaverse users. Rendering produces a 2D or 3D object or environment using a computer program. The challenge of rendering in 3D is that it requires considerably more computing power than in 2D. For the Metaverse to be functional, it will have to run as an interoperable network. Interoperability refers to the capability of a computer system or software to connect and interpret the information sent

from one another. In addition, the Metaverse should allow its users to move seamlessly

from one virtual world to another while maintaining their identity (Ball, 2022).

Privacy, Ethics, and Governance in the Metaverse

Fernandez and Hiu (2022) examined the privacy, governance, and ethical

challenges that the builders of the Metaverse will face and proposed a preliminary

modular-based framework as an ethical design for the Metaverse. Recent studies about

the Metaverse have shown that data security and the safety of Metaverse users are some

of the main challenges that need to be resolved to protect Metaverse users (Dwivedi et

al., 2022; Fernandez & Hiu, 2022). According to Fernandez and Hiu (2022), the data

collected from XR devices and HMDs of Metaverse users or the behavior and

communication of the avatars in the virtual world contain sensitive information about

users that need to be protected from cybercriminals. In addition, the way devices such as

HMDs are currently used to access the Metaverse presents physical safety risks for

Metaverse users and bystanders present around them.

Dwivedi et al. (2022) remarked that, in addition to the data security and privacy

concerns, the devices currently used in the Metaverse and the network on which the

Metaverse operates are not secured. To overcome these challenges, Dwivedi et al.

proposed a "security by design" architecture, which is an approach to cybersecurity that

require the automation of data security controls so that security concerns can be built into

the IT infrastructure from its inception. For Fernandez and Hiu (2022), solutions to the

data security and privacy challenges in the Metaverse include building organizations that

emulate the institutional review board (IRB) model. Furthermore, Fernandez and Hiu

recommended for the governance structure of the Metaverse, adopting blockchain technology, creating privacy-enhancing technologies (PETs), and adding the visualization of people around the metaverse users as virtual "shadows" to solve the physical safety of bystanders and Metaverse users.

Literature Review

Defining the Metaverse

Ball's (2022) definition of the Metaverse explains it as "a massively scaled and interoperable network of the real-time rendered 3D virtual world that can be experienced simultaneously and persistently by an effectively unlimited number of users with a unique sense of presence and with continuity of data" (Ball, 2022, pp.28-29). Damar (2021, as cited in Dwivedi et al., 2022) defined the Metaverse as a "3D virtual shared world where all activities can be carried out with the help of augmented and virtual reality services" (p. 2). According to Ball (2022), one of the critical features of the Metaverse is that it is based on virtual worlds. A virtual world is a simulation of the real world generated by a computer. For Ball, "these environments can be in immersive 3D, 3D, 2.5 D (also known as isometric 3D),2D, layered atop the "real world" via augmented reality, or purely text-based, as in the game-like MUDs and non-game like MUSHs of the 1970" (p. 29).

Several recent studies have emphasized the significance of virtual worlds in the functioning of the Metaverse (Akour et al., 2022; Shin & Kim, 2022). The users in the 3D environment should experience another essential characteristic of the Metaverse. Ball (2022) noted that "Metaverse theorists argued that 3D environments are required to make

possible the transition of human culture and labor from the physical world to the digital one" p (33).

The Metaverse Ecosystem

A Metaverse comprises avatars, content creation, a virtual economy, and use cases (i.e., enterprise use cases and consumer use cases; Schmitt, 2022). According to Terry and Keeney (2022), the current Metaverse ecosystem can be grouped into sandbox metaverses, gaming metaverse, and other metaverses. Some of the most prominent sandbox metaverses include Decentraland, the Sandbox, Cryptovoxels, and Somnium Space. One of the most prominent gaming metaverses is Axie Infinity. Other gaming metaverses include Aavegotchi, Alien Worlds, BigTime, BYOVerse, Cradles, CryptoTanks, DeHorizon, Ember Sword, Enjin, Illuvium, F1 Delta Time Mirandus, My Neighbor Alice, OneRare, Star Atlas, Wilder World. The third category of metaverses includes virtual worlds such as Phygital Commerce, Digital Presence, Readymade Metaverse Environments, and Social VR Worlds (Terry & Keeney, 2022).

History and Evolution of the Metaverse

The fiction writer Neal Stephenson was the first to use the word "Metaverse." In his 1992 novel *Snow Crash*, Stephenson depicted a virtual reality environment where users interact via avatars and software agents (Ball, 2022; Dwivedi et al., 2022; Hackl et al., 2022). However, the concept of the Metaverse predates Stephenson's 1992 novel. According to Terry and Keeney (2022), the term "virtual reality" was first used by French writer and theater director Antonin Artaud, who, in a collection of five essays

published in 1938 and titled the *Theater and Its Double,* used the term virtual reality

(*réalité virtuelle* in French).

The concept of virtual reality headsets came into existence in 1965. In a paper,

Ivan Sutherland described a virtual world created by a computer and accessed using a

HMD. The same year, Morton Hellig created a VR prototype called Sensorama Simulator

with 3D film and stereo sound (Terry & Keeney, 2022; Skarbez et al., 2021). In 1984, in

his novel *Neuromancer*, writer William Gibson in his "quasi-prophetic" depiction of

cyberspace (Van der Merwe, 2021), was the first one to use the word "cyberspace,"

defining it as "a consensual hallucination experienced daily by billions of legitimate

operators, in every nation" (Ball, 2022, p. 5). Several versions of virtual reality headsets

emerged in the late 1990s and early 2000s: Sega's VR-1 motion simulator, Nintendo's

Virtual Boy console, Linden Lab's "The Rig," and the SAS Cube (Ball, 2022).

The Metaverse would not be possible without the internet. The internet was born

on August 6, 1991, when Tim Berners-Lee posted the first public invitation for

collaboration into the World Wide Web (Terry & Keeney, 2022). In 1995, the online

games *Active Worlds* and *The Palace* were developed (Terry & Keeney, 2022; Van

Rijmenam, 2022). In 1998, *There.com*, a game that consists of virtual worlds in which

users interact and exchange services using a currency named "Therebucks" debuted. In

2001, the MMORPG RuneScape was released. By 2012, RuneScape would have more

than 200 million active accounts. In the early 2000s, the gaming industry was dominated

by different types of fantasy MMORPGs (World of Warcraft, Elder Scrolls Online,

Maple Story) (Terry & Keeney, 2022).

A critical milestone in the journey to the current incarnation of the Metaverse is the launch of Second Life. Second Life is a virtual reality platform that Philip Rosedale, and his company Linden Lab created in 2003 (Ball, 2022; Terry & Keeney, 2022). Second Life users are free to socialize, participate in individual and group activities, and build and trade properties using Second Life's currency, the Linden Dollar, which could be exchanged for real-world currency. Second Life has a community of more than one million users (Dwivedi et al., 2022; Terry & Keeney, 2022).

Another significant milestone in the journey to the Metaverse is the launch of Roblox. Created by David Baszucki and Erik Cassel in 2004 and launched to the public in 2006, Roblox designed games that allow users to create and exchange artifacts using its currency, Robux. By 2020, Roblox had reached 165 million users, mostly children aged 9 to 12 (Ball, 2022; Damar, 2021; Terry & Keeney, 2022). Today, Roblox is recognized as a leading Metaverse platform (Wang et al., 2022).

Contribution of Fiction Writers

It is essential to recognize the contribution of fiction writers to conceptualizing the Metaverse. Not only was Neal Stephenson the one who gave the Metaverse its name and popularized the word "avatar," but also, some of the current Metaverse luminaries credit the novel *Snow Crash* for having a significant influence on their imagination of the Metaverse. For example, two of the founders of the company Keyhole, which would later become Google Earth, said that a similar product described in the novel *Snow Crash* inspired their vision of the product (Ball, 2022; Terry & Keeney, 2022). In addition, Jeff Bezos, the executive chairman of Amazon, hired Neal Stephenson as a consultant with

his company. Other writers who had some influence on the Metaverse include William Gibson, who, in his 1984 novel *Neuromancer* coined the word "cyberspace," and Vernon Vinge, who described an accurate vision of cyberspace in his novella *True Names* in 1987 (Terry & Keeney, 2022; Van der Merwe, 2021).

The motion picture industry also helped popularize the Metaverse concept in popular culture with movies like *The Matrix* and *Johnny Mnemonic* (Ball, 2022; Terry & Keeney, 2022). However, the movie that catapulted the Metaverse into the masses' consciousness was Steven Spielberg's *Ready Player One*. The movie is set in 2040 in a post-apocalyptic-looking Columbus, Ohio (Spielberg, 2018). To escape reality, citizens use HMDs, holographic HMDs, and goggles-type HMDs to access a metaverse called Oasis (Park & Kim, 2022). With its depiction of the physical devices, realistic recognition and rendition, gripping scenario and storyline, and realistic portrayal of user interactions, the movie provides viewers with an enthralling idea of what the Metaverse could be in the future (Park & Kim, 2022; Spielberg, 2018).

Infrastructure and Building Blocks of the Metaverse.

Ball (2021) identified eight core enablers of the Metaverse: hardware; networking; computing; virtual platforms; interchange tools and standards; payments; metaverse content, services, and assets; and user behaviors. The Metaverse will be built on an infrastructure that includes, among other things, XR devices, blockchain technology, AI-enabled technologies, Cloud and Edge computing (Dwivedi et al., 2022; Iqbal & Campbell, 2022; Schmitt, 2022),

XR Devices

Metaverse users experience virtuality through the use the immersive technologies such as Virtual Reality (VR), Augmented Reality (AR), Augmented Virtuality (AV), and Mixed Reality (MR). These technologies are collectively referred to as Extended Reality (XR) (Milgram & Kishino, 1994; Terry & Keeney, 2022). Schmitt (2022) noted that XR technologies provide more realistic experiences to users of the Metaverse by helping closely align virtual reality to the real world. Today, XR technologies are used in various sectors, such as tourism, entertainment, healthcare, and education (Dwivedi et al., 2022; Iqbal & Campbell, 2022; Schmid Mast et al., 2018). Terry and Keeney (2022) noted that industry experts predict that by 2030, XR devices will be as common as game consoles or TVs are today.

Artificial Intelligence

The AI revolution is transforming industries across the board, including Metaverse-related industries. The Metaverse will benefit immensely from the AI revolution (Schmitt, 2022). One of the most important breakthroughs in AI is Deep Learning. According to Schmitt (2022), Deep Learning contributions are vital to the future vision of the Metaverse and will have applications in digital twins, computer agents, and the autonomy of the avatars. Lim et al. (2022) explained that AI could improve user experience by improving efficient object rendering, intelligent chatbots, and user-generated content (UGC).

Blockchain Technology

Blockchain was first introduced on January 9, 2009, by Satoshi Nakamoto to record the transactions of the world's first cryptocurrency (Bitcoin). With the invention of the blockchain, one of the essential building blocks of the future Metaverse is set in motion (Santana & Albareda, 2022; Terry & Keeney, 2022). According to Schmitt (2022), blockchain is the technology enabling the digital market of the Metaverse by allowing for the storage of digital assets and the use of digital currencies.

Blockchain strength comes from four fundamental inherent features: Decentralization; Immutability; Integrity, Authenticity, and Non-Repudiation; and Auditability and Traceability (Javed et al., 2022; Wang et al.,2022). Decentralization refers to the fact that blockchain information is sent to all nodes of the networks, making it impossible for an individual or entity to control or tamper with its content. Immutability refers to the fact that blockchain cannot be altered due to the use of cryptography and the presence of many copies. Integrity, Authenticity, and Non-Repudiation refer to the fact that when a transaction is made, the data is protected against modifications using private keys to sign the document, thus ensuring the authenticity and non-repudiation of the message. Auditability and Traceability refer to the fact that each transaction is recorded in a verifiable and permanent manner, ensuring that all transactions are traceable and available to all participants (Javed et al., 2022; Wang et al., 2022).

One of the recent applications of blockchain is the development of smart contracts that allow for a contract between parties without the intervention of a third party,

(Dwivedi et al., 2022; Fernandez & Hui, 2022; Javed et al., 2022). Another application

built on blockchain technology is the Non-Fungible Tokens (NFTs). NFTs refer to digital

assets such as images of cats, online social media posts, tweets, and artwork whose

values are determined in the marketplace (Warin, 2022). According to Chandra (2022),

NFTs can be used in a wide variety of ways, and any valuable object in real life has the

potential of having its virtual twin in the Metaverse. For that reason, NFTs have spurred

what Chandra (2022) labeled an "NFT-enabled entrepreneurship," where users can trade

items such as sports memorabilia, songs, films, sneakers, handbags, whiskeys, and books

to virtual objects in the metaverse.

While the use of NFTs represents an excellent opportunity for monetizing the

Metaverse (Ball, 2022; Dwivedi et al.,2022), the sudden popularity of the NFTs brings

several risks that could jeopardize the viability of the Metaverse. Service providers need

to protect against hacking by cybercriminals and ensure there is a foolproof method to

authenticate NFTs (Dwivedi et al., 2022). In addition, without proper controls in place,

there is the risk of criminals using the NFTs for money laundering purposes (Dwivedi et

al., 2022; Smaili & De Rancourt-Raymond, 2022).

Cloud and Edge Computing

The vision of the new Metaverse includes rendering immersive 3D worlds and

using AI-driven applications to create a truly immersive experience. The challenge of

rendering in 3D is that it requires considerably more computing power than in 2D (Ball,

2022; Lee et al., 2021; Wang et al., 2022;). Ball (2022) affirmed that the size of virtual

worlds would be severely restricted without real-time rendering. Unfortunately, the most

widely immersive devices currently used in the Metaverse environments, such as AR glasses or VR headsets, tend to have weak graphic processing capabilities (Schmitt, 2022). According to Lim et al. (2022), edge computing can solve the problem by ensuring that the computing power is adjacent to the physical data source, thus reducing network latency.

Metaverse Tools

As was discussed earlier, XR technologies are an essential part of the building blocks of the Metaverse. According to Terry and Keeney (2022), almost all AR and VR applications are being built using two technologies: Unity Technologies and Unreal Engine. Unity Technologies and Unreal Engine help create, design, and render 3D content in real-time. These two technologies are used in all the industries that need 3D, ranging from the movie industry to the gaming industry, architecture, and the automobile industry, all the way to the broadcast industry (Terry & Keeney, 2022; Webb, 2022). Unity Technologies simulates the actions of non-player characters (NPCs) and digital twins. The dominance of these technologies is due to the fact they help solve the interoperability problem discussed later by allowing developers and designers to design and deploy products across devices and files everywhere, almost without exception (Ball, 2022; Terry & Keeney, 2022).

The Metaverse Economy

A genuinely functioning virtual economy necessitates a digital market, assets, and currency (Schmitt, 2022). The Metaverse economy is projected to take up a significant portion of the global economy in the next decade. Some predict that the economy in the

Metaverse will be larger than the economy in the physical world (Ball, 2022). McKinsey & Company (2022) estimated that the Metaverse economy could be valued at 5 trillion dollars by 2030. Ball (2022) estimated the value of the Metaverse economy in the tens of trillions of dollars by 2030. No wonder corporations, institutions, governments, and individuals are racing to position themselves to take advantage of the lucrative prospects the Metaverse will offer. Some sectors that could prosper in the Metaverse include Real Estate, Gaming, Tourism, Sports Media and Entertainment, Creation, Healthcare, Education, and Tourism. (Dwivedi et al.,2022; Iqbal & Campbell, 2022).

Real Estate

Real Estate appears to be one of the sectors most adapted to the Metaverse. In *Second Life*, one of the earliest versions of the Metaverse, users can build and trade real estate using the platform's currency called Linden Dollars (De Zwart, 2010; Terry & Keeney, 2022). One of the milestones demonstrating the economic viability of *Second Life* as a Metaverse happened in 2006 when *Second Life* user Anshe Chung sold her virtual property for the equivalent of USD 1 million in Linden Dollars (Terry & Keeney, 2022). Recently, Ralph Lauren opened its newest storefront in the virtual world of Roblox (Dwivedi et al., 2022). According to Dwivedi et al. (2022), the Real Estate market in the Metaverse is rapidly expanding. In 2021, a purchase of virtual land in Decentraland was valued at $2.43 million, making it the highest-value transaction in the virtual world to date (Iqbal & Campbell, 2022).

Tourism

The tourism sector could be amenable to the possibilities of the Metaverse. For example, some tourism industry leaders are promoting the adoption of smart tourism, which consists of tourists using XR immersive technologies that transport users into artificially constructed environments (Dwivedi et al., 2022; Sarkady et al., 2020). Smart tourism includes a vision in which sensory perceptions (somatosensory, vision, sound, and touch) are manipulated with the help of screen-based technologies, haptic devices, and exoskeletons (Dwivedi et al. 2022). Some industry experts contend that tourism through the Metaverse will become the next disruptor in the tourism industry because of the possibility of designing personal experiences that Metaverse users will find valuable (Dwivedi et al., 2022). In addition, virtual tourism through the Metaverse has the advantage over physical tourism in that it is cost-effective for users and helps them avoid personal security issues associated with traveling to unknown places (Gursoy et al., 2022).

Gaming

It is safe to say that the gaming industry has a built-in advantage over the competition regarding compatibility with the Metaverse. Most of the technological advances making the Metaverse possible could be traced to the innovations that originated in the gaming industry (Schmitt, 2022; Ball, 2022; Terry and Keeney, 2022). For example, Roblox, one of the most prominent Metaverse platforms, is based on games where users can create and exchange. Roblox has more than 140 million users (Terry & Keeney, 2022). One of the recent innovations in the gaming industry is the introduction

of the play-to-earn model that rewards users for contributing to the game (Iqbal &

Campbell, 2022).

The play-to-earn model will be instrumental in the future economic model of the

future Metaverse. It is no surprise, then, that the gaming industry has been experiencing

considerable growth and has garnered the attention of venture capitalists. In recent years,

two of the largest-ever initial public offerings (IPOs) in the gaming industry were

initiated for Unity Technologies and Roblox Corporation; this is not a coincidence, given

that both companies are involved in Metaverse-related activities (Ball, 2022). Currently,

several gaming companies are operating as gaming Metaverses. One of the most

innovative is *Eve Online* with its brilliant creative designs and innovative systems

architecture (Ball, 2022; Hackl et al., 2022).

Creation

The Metaverse will provide excellent opportunities for the creative industry.

According to Fernandez and Hui (2022), the creation process is one of the most

significant assets of the Metaverse. Blockchain technology allows users to create NFTs

and trade them in Metaverse. Unfortunately, the decentralized nature of the DAOs can

make NFTs vulnerable to hacking which could put the model at risk. To mitigate these

risks, some platforms have started implementing "invite-only" policies that could limit

users' creativity and diversity (Fernandez & Hui, 2022). Another innovation is the play-

to-earn games (pioneered by *Axie Infinite*), allowing users to earn money as they play

(Ball, 2022).

Sports, Media, and Entertainment

The media and entertainment industry was severely impacted by the covid-19 pandemic (Iqbal & Campbell, 2022). The industry has lost considerable money and is still struggling to recover two years after the covid-19 pandemic. Hence many in the industry advocate for rapid digital transformations (Dwivedi et al.,2022). The Metaverse will help the entertainment industry by offering immersive storytelling that will enhance engagement from participants. In addition, with the help of VR and haptic technologies, users will have engaging and immersive experiences (Lim et al., 2022).

Healthcare

The healthcare industry will benefit from the convergence of the virtual and physical spaces in the Metaverse, especially regarding health and medical training (Iqbal & Campbell, 2022). The XR immersive technologies represent a more suitable alternative to conventional tools used in healthcare education. For example, using 3D Holograms to teach anatomy to medical students could be a very effective way to improve medical education. In spine medicine, VR is already used for surgical simulation, planning, and intraoperative guidance (Morimoto et al., 2022). Another favorable implication of the Metaverse in healthcare is the possibility of using digital twins and avatars for consultation. Further, the Metaverse provides the possibility of improving the quality of telehealth by moving it from 2D to 3D. Moreover, the Metaverse could provide the opportunity to prioritize and implement data-driven healthcare (Iqbal & Campbell, 2022).

Education

Education may be the sector where the transformative effects of the Metaverse could be most felt because of the 3D immersive capabilities of the Metaverse. The education sector has been going through a digital transformation in the last decades with the proliferation of online learning models (Dwivedi et al., 2022). The covid 19 pandemic has created the need to accelerate digital transformation with tools such as Zoom and Webex. While remote learning has been effective to various degrees, the Metaverse offers an opportunity to make it more impactful because of the immersive technologies' ability to provide more realistic simulations of the classroom setting to keep students more engaged (Iqbal & Campbell).

The challenge for the education technology sector is to develop the technology that will approximate the face-to-face interaction as closely as possible, simulate the learning environment, and allow avatars to mimic the nature of the schoolroom environment (Dwivedi et al.,2022). Other aspects that the Metaverse could improve include improvement in training and development (Upadhyay & Khandelwal, 2022). Improvements in the training areas can be in the form of immersive virtual reality (IVR) technology (Hawkins, 2022; Michalikova et al., 2022; Schmid Mast et al., 2018) and the use of virtual reality for social skills training (Schmid Mast et al., 2018).

Corporations

The potential of the Metaverse did not escape the attention of big corporations in the real world. It seems that many of them are making moves to position themselves to take advantage of the benefits of the Metaverse. One of the most notable moves by a big

corporation was made by Facebook when it changed the name of its parent company from Facebook to Meta. That move, combined with the acquisition of Oculus, the largest HMD manufacturer in 2014, signaled that Facebook intended to be a big player in the Metaverse (Kraus et al., 2022).

Several large corporations have plans for Metaverse. For example, Amazon has been developing a "new virtual reality shopping experience" to assert its dominance in virtual commerce the same way it is dominating e-commerce in the real world (Ning et al., 2022). Microsoft's vision of the Metaverse is focused on the workplace setting. The company leaders speak of the concept of a Microsoft-led "enterprise Metaverse" (Ball, 2022). For example, Microsoft is developing a technology that will allow users to change their video feed to an animated avatar of the self in Microsoft Teams (Terry & Keeney, 2022). In addition, Microsoft owns *Minecraft*, one of the most popular gaming platforms (Hackl et al., 2022). Disney has plans to build a theme park Metaverse (Ning et al., 2022). NVIDIA, the computing and semiconductor giant, predicts that the Metaverse economy will be bigger than the real economy and that Nvidia platforms will play a central role in the Metaverse economy (Ball, 2022).

Governments

Governments also take notice and act as players in the Metaverse. In China, the state prioritized blockchain in its 13th five-year plan in 2016. The same year, the Chinese Ministry of Industry and Information Technology released a white paper titled "2016 China Blockchain Technology and Application Development". In 2021, the same ministry issued guidelines for accelerating the application and development of blockchain

(Ning et al., 2021). In the US, the Office of the National Coordinator for Health

Information Technology (ONC), a division of the U.S. Department of Health and Human

Services, recently organized a hacking marathon to explore the application of blockchain

technology to the healthcare industry. In addition, in 2017, the US Congress established

the Congressional Blockchain Decision Committee (Ning et al., 2021; Song et al., 2022).

The South Korean government has the vision to include fully developed Korea-based

Metaverse platforms; they allocated 6.9 billion dollars in 2022 to accelerate digital

transformation and 2.2 billion dollars in 2025 to be spent on Metaverse, blockchain, and

other technologies (Ning et al., 2021).

The Currency of the Metaverse

For a virtual world to function correctly, it needs a currency (Schmitt, 2022).

Which begs the question: What type of currency will the Metaverse have? For many, the

answer may lie in cryptocurrencies such as Bitcoin (Chen & Chen, 2022; Hackl et

al.,2022). According to Hackl et al. (2022), the reason decentralized cryptocurrencies are

a suitable candidate to become the currency for the Metaverse economy is that they

perform the three essential functions of a currency: act as a medium of exchange, be a

unit of account, and serve as a storage and measure of value. However, in the current

Metaverse ecosystem, both digital currencies and fiat(real) currencies are being used

(Hackl et al., 2022).

Chen and Chen (2022) noted that there are three major categories of currencies

used in the Metaverse: centralized currencies that are issued by platforms such as the

Linden Dollars by Second Life; decentralized cryptocurrencies such as Bitcoin and Ether;

and platforms issued stable coins created to achieve efficiency in the transaction within a specific metaverse. Hackl et al. (2022) identified three types of platform-issued coins: utility tokens, governance tokens, and security tokens. Utility tokens are used to make purchases inside a specific virtual world's dApp. For example, if you want to purchase assets inside *Axie Infinity*, you will use the platform's currency. Governance tokens are used for purposes such as voting inside the platform. Security tokens certify ownership rights (Hackl et al.,2022).

Various currencies inside the different platforms create an interoperability challenge that needs to be resolved (Chen & Chen, 2022). The challenge remains to improve the efficiency in the execution of the transactions. Some experts believe that decentralized currencies like Bitcoin, Ethereum, $MANA, and the US dollar can resolve that problem by allowing users in different platforms to exchange their centralized currency for the decentralized currencies and then purchasing the centralized currency of whatever platform they want to access (Chen & Chen, 2022; Terry and Keeney, 2022).

Another dimension of the discussion of the use of cryptocurrencies is the governments' attitude. As Belk et al. (2022) remarked, world governments have been very reluctant to use cryptocurrencies. According to the authors, only two governments use cryptocurrencies: El Salvador and the Central African Republic. Both countries have adopted Bitcoin as a national currency (Belk et al., 2022). The reluctance of governments to adopt cryptocurrencies could be explained by legitimate fears and concerns about the use of cryptocurrencies for purposes such as fraud, cyber criminality, and money laundering (Dwivedi et al., 2022; Smaili & De Rancourt-Raymond, 2022). Unfortunately,

the recent collapse of the cryptocurrency exchange platform FTX (Yaffe-Bellany, 2022) will do nothing to alleviate those concerns. On the contrary, they may lead to clamoring for the intervention of governments and business leaders to introduce stricter regulation of cryptocurrencies.

Business Opportunities of the Metaverse

If we are to believe Metaverse experts and futurists, the Metaverse has the potential to dramatically change society as we know it and transform how business is done in profound ways. Venture capitalist and Metaverse expert Matthew Ball observed that the Metaverse would permanently alter our daily routines by changing how we work and think (Ball 2022). Jensen Huang, the CEO and founder of NVIDIA, the computing and semiconductor company, stated that the Metaverse economy would supplant that of the real world (Ball, 2022). Fernandez and Hui (2022) declared that the Metaverse would affect human societies, production, and life.

Dwivedi et al. (2022) proclaimed that the transformative effect of the Metaverse could be as radical as blurring the lines between the physical and the virtual worlds. In this section, I will discuss some of the significant opportunities presented by the Metaverse according to the extant literature. The Metaverse has the potential to dramatically transform the areas of education, training, and skills development because its ability to present a three-dimensional environment that can mimic real work is crucial. As was previously discussed, the XR immersive technologies will help students be more engaged with classrooms that better simulate the real world (Iqbal & Campbell, 2022)

and help medical education by using 3D holograms to teach anatomy (Morimoto et al.,

2022).

One significant opportunity presented by the Metaverse is its decentralized nature.

Decentralization allows users to use the next wave of the internet without the risk of one

organization, government, or entity controlling everything. Blockchain technology allows

Web 3.0 and decentralization because it permits all users to access data and protects and

secures the privacy of the data (Purdy, 2022; Warin, 2022). The same advantages that

allow decentralization are also a source of challenge. Decentralization is often

characterized by loose governance structures that cannot address safety, security, and

ethical issues observed in the current Metaverse ecosystem (Ball, 2022; Fernandez &

Hui, 2022; Van Rijmenam, 2022).

Another opportunity of the Metaverse is the use of digital marketing. The 3D

immersive dimension of the Metaverse represents a key advantage of the Metaverse over

the platforms of Web 2.0 technology. Wagner & Cozmiuc (2022) conducted a multiple

case study on extended reality and marketing. The authors found that XR technologies

have the potential to reinvent digital marketing. Dwivedi et al. (2022) remarked that the

Metaverse has the potential to become the best option for digital marketing because of the

immersive technologies that will keep the users engaged in their interactions with the

marketers in the Metaverse. Corporations have already begun to see that potential and are

focusing their efforts on digital marketing on Metaverse applications. For example,

companies such as Gucci are building stores in Roblox, the popular gaming platform, to

reach its more than 230 million users (Dwivedi et al., 2022).

Another possible positive impact of the Metaverse is its likelihood of bringing about accessibility, diversity, and equality. According to Fernandez and Hui (2022), the Metaverse has the potential to eliminate social ills such as racism and inequality and promote diversity by removing the limitations of the physical world, allowing users to design their avatars and express themselves as they see themselves, and offering limitless possibilities to all users. In addition, when the technology permits, the Metaverse could allow more users to access social events. The University of California, Berkley, recently conducted a graduation ceremony inside Minecraft (Fernandez and Hui, 2022).

Challenges of the Metaverse

For all the obvious transformative opportunities the Metaverse presents, it also has numerous challenges from sociotechnical and governance perspectives that need to be addressed before it can be fully realized. Some of the challenges include safety and privacy, technological, legal, ethical, and governance (Dwivedi et al., 2022; Fernandez and Hui, 2022)

Security and Privacy Challenges

One of the biggest challenges to realizing the full potential of the Metaverse involves the security of the data being collected and the safety and privacy of the Metaverse users (Dwivedi et al., 2022; Fernandez & Hui, 2022; Ning et al., 2022). These challenges include the security of the data, the software used, the hardware, and the networks on which the platforms operate. The privacy of Metaverse users is related to vulnerabilities in the HMDs, the avatars, and the data generated from the users. Fernandez and Hui (2022) remarked that the sensory data generated by the XR devices

used in the Metaverse, such as the HMDs' biometric and spatial data, could be subject to hacking or attacks resulting in security risks for the users. The authors propose solutions to the issue focused on securing the data inputs. Some software security threats include insecure system architecture, unpatched software, malware, and ransomware (Dwivedi et al., 2022). The security vulnerabilities could lead to exposing children to violence and pornography. An incident of that nature happened recently when Roblox, a metaverse that is used mainly by 9 to 11 years old kids (Terry & Keeney, 2022), was infected by malware. The hackers demanded to be paid in Robux before releasing the malware (Dwivedi et al.,2022).

The Network on which the Metaverse operates could be a source of vulnerability for the Metaverse. The current metaverses operate on networks that do not encrypt, making them vulnerable to sniffing or spoofing attacks (Dwivedi et al.,2022). To ensure that the Metaverse is viable, the networks need to be encrypted to eliminate the risks. Ensuring the accessibility of the Metaverse to its users is a significant challenge that needs to be overcome. The users of Metaverse will not be able to access it if the network is unavailable or if the network is the victim of distributed denial of Service (DDoS) (Dwivedi et al., 2022). Finally, the devices used to access the Metaverse, such as HMDs, VR headsets, or IoT devices, could be vulnerable to attacks. Hackers could use the vulnerabilities of the devices to access and control the devices remotely (Dwivedi et al., 2022; Fernandez & Hui, 2022).

Technological Challenges

The technological challenges are related to interoperability, rendition, 3D graphics, and digital presence. One of the main technological challenges of the Metaverse is interoperability. Interoperability refers to the ability of all the systems in a network to link up and exchange information (Hackl et al., 2022). In other words, interoperability is the capability of a computer system or software to connect and interpret the information sent from one computer system to another computer (Ball, 2022). Ball (2022) noted that today, all virtual worlds and software systems are incapable of understanding each other because of the different file formats and rendering engines on which they are based. As a result, the issue of interoperability remains a significant one for the applications of Web 2.0 technology. However, with Web.3.0 technology, there may be a possibility of achieving interoperability in the future due to blockchain technology. According to Ball (2022), despite the actual technical challenges to achieving interoperability, it is possible because of the economic incentives for all stakeholders involved in the development of the Metaverse to achieve it.

To illustrate his point, Ball (2022) points out the situation in the gaming industry decades ago, when each maker of gaming consoles only allowed its games to be played on its console. Ball (2022) recounts that SONY, the dominant player in that market with its *PlayStation* console, resisted allowing other companies' games to be played on its consoles. However, with innovations like *Fortnite*, SONY was eventually forced to succumb to the pressure and allow games from other developers to be played on its console. In addition to the interoperability between the different platforms of the

Metaverse, Dwivedi et al. (2022) contend that there should be interoperability between the Metaverse and the real world. Lee et al. (2021) noted that an example of that type of interoperability could be found in smart healthcare by creating a digital twin of the patient and having doctors securely access the health records.

A particular technological challenge to the full realization of the Metaverse is the network's capabilities. For Ball (2022), the amount of bandwidth required to have a Metaverse that is interoperable with the real world will require considerable bandwidth. In addition, service providers need to solve the problem of latency in the 3D virtual worlds to ensure that Metaverse users experience something akin to a real-time experience (Lim et al.,2022). An additional technological challenge is the computing capabilities that could compute all the requests of the Metaverse users in real-time. Computational limitations will shape the experiences in the Metaverse. Moreover, those limitations will determine who will access the Metaverse, when, and where they can access it (Ball, 2022).

A further technological challenge to achieving the Metaverse is the realization of digital presence. That means having an unlimited number of users able to access the Metaverse anytime (Ball, 2022). Ausburn and Ausburn (2014) defined presence "as a subjective perception in which users are aware that part or all of their experience is via technology, but they overlook, at some level and to some degree, that knowledge and perceive objects, events, and environments as if the technology was not there (ISPR, 2000)" (p.376). Unfortunately, we are a long way from that vision, given the current level

of technology. According to Ball (2022), the most successful video companies cannot sustain more than 150 users in a shared simulation.

To illustrate how daunting a technological challenge digital presence can become, Ball (2022) cited several recent examples of shared simulation events. Such an event is the Battle Royale of the game F*ortnite*, with up to 100 players who can participate in animated virtual worlds the size of a 5 km^2 map in which players can do activities ranging from dances and maneuvers to building complex structures tens of stories tall. However, remarked Ball (2022), only a few players will run across one another at one time, and the amount of people who will be present in a smaller portion of the map is minimal. The same challenge is valid for the game *World of Warcraft, where* users must pick a domain of roughly 1,500-square-kilometer virtual world that does not allow the users to see or interact with one another. Ball (2022) remarked that the appropriate name of the game should be "Worlds" of Warcraft instead of *World of Warcraft*. Ball (2022) proclaimed that the Metaverse would not be fully realized until the digital presence challenge is resolved, and users can simultaneously experience the same event without significantly compromising functionality, interactivity, persistence, and rendering quality.

Legal and Ethical Challenges

The Metaverse presents various complex legal issues that must be addressed to protect users' rights. Beioley (2022) referenced that existing laws never considered users' behaviors in the virtual world. De Zwart and Lindsay (2010) remarked that the Metaverse transcends natural borders. Therefore, a solution should be found to determine under which jurisdiction Metaverse users should fall. Garon (2022) predicts that the Metaverse

will impact state and federal gambling laws, money transfer laws, securities laws, privacy, and cybersecurity laws. Mystakidis (2022) declared that the Metaverse would impact the current copyright laws.

Some significant ethical challenges are encased around the legal and ethical implications of the avatar being linked to a real person (Dwivedi et al., 2022). One significant example is solving the problem of how service providers would handle misbehaviors, such as an avatar sexually harassing another avatar (Dwivedi et al.,2022, Lee et al., 2021). Beioley (2022) reported a recent incident when an individual entered Meta's virtual world to check what was going on that day. The user claimed that within minutes of entering the virtual world, she was sexually assaulted when other avatars started groping her avatar and saying things such as "do not pretend you don't like it, this is what you came here for" (Beioley, 2022, p.1). The author wondered about the proper accountability for the real people behind these acts in the Metaverse. Other questions regarding the ethical implications of the avatars include how to protect avatars from abuses such as racism, sexism, ageism, antisemitism, and homophobia, and what happens to the avatar when the physical person dies (Dwivedi et al., 2022).

A serious ethical issue in the Metaverse concerns the psychological effects of being in the Metaverse. Floridi (2022) argued that the problem of addiction and the desire to escape from reality could represent a serious ethical issue with the use of the Metaverse. Users could develop psychological problems, such as the risk of being addicted to the Metaverse (Wang et al., 2022).

An additional ethical issue is related to equity in the Metaverse. Web 2.0 has brought about the ethical issue of the digital divide characterized by some members of society being unable to access the internet because of their economic conditions and the lack of adequate infrastructure in their areas (Floridi, 2022). Some have expressed the fear that Metaverse could exacerbate the digital divide (Garon, 2022) and usher in what could be termed a "virtual divide." Fernandez and Hui (2022) think otherwise. The authors propose a hopeful vision of the Metaverse. For Fernandez and Hui (2022), the metaverse could be a place that can promote gender, race, disability, and social status equality.

Governance of the Metaverse

The objective of the research was to describe the views of Metaverse strategy and innovation management experts on how business leaders and policymakers may collaborate on shaping a governance framework that will enable a viable, safe, and secure Metaverse. Many experts believe that the stakeholders involved in the Metaverse development must work together to achieve a viable and safe user environment (Anderson & Rainie, 2022; De Zwart & Lindsay, 2010).

According to De Zwart and Lindsay (2010), Grimes et al. (2008) grouped the source of governance of virtual worlds into two main categories: the source code and the civil code rules. These categories include: "the EULA/ToS: the contractual terms accepted by the end user, albeit frequently without reading them; the community rules or acceptable use guidelines; the code: the underlying physics of the world which determines what the avatar can (or cannot) do; the general law applicable to the end user

and the service provider; and possibly, the specific norms or rules that apply to the particular environment, such as rules regarding speech, conduct, and appearance, for example, the steampunk sim of Caledon (and surrounding sims) in Second Life" (De Zwart & Lindsay, 2010, p.68). In the following section, I will discuss the Metaverse's governance by examining the Metaverse's main governance issues, identifying the key stakeholders and their motives, and presenting some current governance models currently being discussed by Metaverse researchers and experts.

Metaverse Governance Stakeholders

De Zwart (2009) noted that the three key stakeholders of the governance of the Metaverse are real-world governments, virtual-world platform developers and service providers, and platform users and citizens. The interest of governments in the governance of the Metaverse pertains mainly to regulating misbehaviors, including crimes, taxation, preventing money laundering, and protecting content regulation (De Zwart, 2009; Dwivedi et al., 2022; Smaili & De Rancourt-Raymond, 2022). As we can infer from the review of its recent evolution, the Metaverse is primarily driven by the private sector. The public sector involvement in the Metaverse is minimal. Nevertheless, several researchers and Metaverse experts insist that the involvement of policymakers is crucial given the ethical, safety, and security challenges that the Metaverse parents face (Dwivedi et al., 2022; Lee et al., 2021).

Dwivedi et al. (2022) asserted that policymakers and tech companies' leaders must collaborate to create an ethical governance framework for the Metaverse. Lee et al. (2021) suggested that without government involvement, the Metaverse could become a

place of anarchy and chaos. Iqbal and Campbell (2022) stated that policymakers should be involved in addressing privacy and ethical issues in the Metaverse. The lack of a governance structure that will regulate the functioning of the Metaverse represents one of the significant challenges to the full realization of the promise of the Metaverse and has been cited by researchers as a gap in the research on the topic of the Metaverse (Bibri, 2022; Dwivedi et al., 2022; Fernandez & Hiu, 2022; Schmitt, 2022).

The call for the involvement of governments in elaborating a governance framework of the Metaverse is understandable. After all, the Metaverse presents some serious issues that platform providers and users cannot and are not equipped to resolve, including the safety of children in the Metaverse, fraud, and cyber-criminality that platform providers are not able to handle (Dwivedi et al., 2022; Smaili & De Rancourt-Raymond, 2022). However, many Metaverse experts believe governments are not well informed about the Metaverse and must be educated first before enacting any regulations (De Zwart & Lindsay, 2010; Dwivedi et al., 2022).

De Zwart and Lindsay (2010) noted that one of the most important things to consider regarding the governance of the Metaverse is that virtual worlds in the current Metaverse ecosystem are different. For De Zwart and Lindsay (2010), some virtual worlds are highly moderated in content and access, while others are more open because they are created to encourage player-driven creation and competition. For example, the virtual environment EVE incites its users to behave like pirates, while Second Life privileges content creation and the ability for users to interact and exchange goods and services (De Zwart & Lindsay, 2010). Therefore, regulators need to understand the whole

Metaverse ecosystem before enacting all-encompassing rules that could hinder creativity and the users' overall experience.

The second group of stakeholders in the governance of Metaverse is the platform developers and service providers. The main interest of this group of stakeholders lies in monetizing their platforms and establishing control over them through End User License Agreements (EULA) and terms of service (ToS). The service providers are both the creators and the controllers of the virtual worlds. De Zwart and Lindsay (2010) remarked that service providers tend to renege on these responsibilities depending on which of the two roles they want to emphasize. Disagreements between users and developers tend to appear when the users' interests diverge from those of the developers. For example, Linden Lab, the developers of *Second Life*, has had a problematic relationship with the platform's users, moving from a strong and controlling stand to trying to hide behind the mantle of a service provider (De Zwart & Lindsay, 2010).

One possible obstacle to the regulation of the Metaverse could come from the resistance by the creators and users of virtual worlds based on their belief that virtual worlds are artificial spaces and, therefore, are protected by the so-called "Magic Circle". The concept of Magic Circle pertains to Johan Huizinga's idea that game environments are places where players are detached from the real world and, therefore, by adhering to the rules of the game, are protected from the reach of the real world's laws (De Zwart & Lindsay, 2010). However, many reject that concept because the actions of the users of the virtual worlds have real consequences on people in the real world and, therefore, need to be regulated (Beioley, 2022; De Zwart & Lindsay, 2010).

The third group of stakeholders in the governance of Metaverse is the platform users and the citizens. This group of stakeholders is interested in ensuring that platform users' rights are protected and that the platforms are safe for all users. They are mainly concerned with the safety and security of Metaverse users, preserving users' privacy and ownership rights of their creations and NFTs (De Zwart, 2010; De Zwart & Lindsay, 2010, Dwivedi et al., 2022). The recent innovations brought about by blockchain and the increased interest in the NFTs have led many Metaverse experts and concerned citizens to call for greater protection for the rights of Metaverse users (Guinchard, 2010; Fernandez & Hiu, 2022; Rosenberg, 2022). Fernandez and Rui (2022) noted that the state of California and the European Union enacted respectively the California Consumer Privacy Act (CCPA) and the General Data Regulation Protection (GDPR) to protect the rights of individuals in monitoring environments.

Another example of advocacy for the rights of Metaverse users can be heard on a recent episode of the BBC program File on 4 titled: *Roblox: A dangerous game?* In it, Hassall (2022) discussed the ethical issues created by Roblox, primarily as they are related to the safety of children, who represent most platform users. In the program, we hear several users share their negative experiences using Roblox, including children recounting instances where they were victims of violence of sexual in nature.

Governance Issues

In an analysis of the governance of the global Metaverse, focused mainly on the MMORPGs, De Zwart and Lindsay (2010) addressed the issues of the legitimacy of rulemaking, the applicability of the rule of law, the issue of consent, public versus private

rulemaking, and the applicability of the national laws to global virtual metaverses. De Zwart and Lindsay (2010) shared the following key governance issues in the virtual worlds identified by the stakeholders at *Virtual Policy 08 (UK)* conference:

- The complex nature of virtual worlds' governance comprises a mix of self-regulation, End User License Agreements (EULAs), national regulation, and codes of conduct

- The applicability of classifying virtual worlds as a separate classification for regulatory purposes (distinct from broader internet regulation)

- The perceived lack of lobbying power/ cohesive interests among service providers

- Whether national laws should apply to virtual worlds or should be recognized as a particular place and the related matter of determination and enforcement of jurisdiction concerning applicable laws

- The nature and quality of consent provided by users

- Clarification of the question of whose interests should be protected according to regulatory intervention (i.e., children or adults)

- The recognition that enforcement procedures are a necessary aspect of effective regulation

- The recognition of the variety of models of virtual worlds

- The need for more explicit induction procedures and education of users

- Identifying an appropriate legal model for participation in virtual worlds (De Zwart & Lindsay, 2010, p.67).

Given the complexity of the governance issues identified, De Zwart & Lindsay (2010) caution against the danger of governments moving in quickly and enacting sweeping regulations without the full knowledge of the phenomenon. That is why argued De Zwart and Lindsay (2010), all stakeholders should get together to come up with a governance model that will be viable and will ensure the safety and security of its users. Otherwise, under the pressure of the media and advocates, governments could enact knee-jerk-type regulations that will stunt the development of the Metaverse as envisioned.

One of the main obstacles to achieving a global governance structure for the Metaverse is the current state of international cooperation. Dwivedi et al. (2022) noted that the Metaverse is supposed to supplant natural borders. According to Fernandez and Hui (2022), one of the biggest challenges of the governance of the Metaverse is determining which government laws apply to users from other countries. Unfortunately, the current global geopolitical tensions and divergences could prevent agreements between states on establishing a fully functioning global Metaverse (Schmitt, 2022; Garon, 2022).

Another potential challenge to achieving a governance structure of the Metaverse is the position of some users and scholars that governments should not be involved in regulating virtual environments. According to this school of thought, users and service providers should be allowed to enact their own rules and develop their dispute resolution mechanisms to resolve issues in the Metaverse (Goldston et al., 2022; Fernandez & Hui, 2022). In recent years, that vision has come to reality with the emergence of DAOs such

as Decentraland. Decentraland is one of the first DAOs based on blockchain technology.

The metaverse is owned and run by its users. Users who hold either Land or

Decentraland's currency, MANA, are given a certain amount of voting power

proportional to their assets (Kshetri & Schordan, 2022; Terry & Keeney, 2022).

Another significant challenge for establishing a governance framework for the

global Metaverse is related to the terms included in the software license agreement that

allows the user to use the software. Some have argued for greater control through the

legal enforcement of EULA and terms of service (Garon, 2022). However, this stance is

not conducive to the development of the Metaverse for several reasons. For example,

most users never read the EULAs. In addition, users do not have a choice but to sign up if

they want to join. Metaverse users need to have some sense of ownership of their

creations inside the platforms (Dwivedi et al.,2022) to ensure they have the incentive and

motivation to participate. Unfortunately, according to De Zwart and Lindsay (2010),

recent court decisions have shown that the courts have tended to side with the developers'

right to enact restrictive license agreements, which could jeopardize the ability and

freedom of the users to use the software in conjunction with other software to create

content and protect their rights to contribute to the Metaverse.

The legal implications of the avatar's essence are yet another complex issue that

complicates the development of the governance framework of the Metaverse. De Zwart

and Lindsay (2012) conducted a psycho-sociological analysis of the relationship between

the users and their avatars as well as the implications in terms of the legal rights of the

avatars. The authors remarked that the relationship between the user and the avatar is

characterized by changing purposes for the avatars' use. De Zwart and Lindsay (2012)

pointed out that the avatar has evolved from a simple identity in two-dimensional forums

on the internet to a more complex identity in virtual worlds. According to the authors, the

avatars in the virtual world represent an opportunity for users to define themselves and

express themselves beyond the limitations of their physical selves. Some have argued that

the avatar is a type of cyborg that the users employ to engage with the virtual

environment (Lastowka & Hunter, 2004). In the end, remarked De Zwart and Lindsay

(2012), one of the biggest challenges related to avatars lies in terms of service (ToS) that

users sign for the right to join the virtual world.

Some challenges to the governance of the Metaverse are related to the

management of the data generated by Metaverse users. Wang et al. (2022) declared that

data management issues include threats during the data collection, vulnerabilities that

could happen during the data transmission, and threats to cloud edge storage. For

example, in 2006, *Second Life* experienced hacking that compromised users' data, such

as usernames, passwords, and payment details. Dwivedi et al. (2022) insisted that data

security is a serious issue that any governance framework needs to address. Another

governance vulnerability related to data security could happen when there is a gap

generated by the fact that the source code is allowing activities that are prohibited by the

civil code rules. In those instances, the Metaverse may be vulnerable to hacking or

misbehavior that is antithetic to the rules that are enacted (De Zwart & Lindsay, 2010)

Governance Models

While the governance challenges discussed so far are daunting and will require a substantive collaborative effort to overcome, some experts and researchers have proposed solutions that could be the basis of a global governance framework for the new Metaverse. Fernandez and Hiu (2022) noted that elements of the future governance framework of the global Metaverse could be found in some governance solutions currently in use in the gaming and social media platforms. These include codes and rules, blockchain and decentralized autonomous organizations (DAOs), modular governance, and online platforms used for social good. For Fernandez and Hui (2022), the builders of the Metaverse could use software code the same way law is used to regulate real-world affairs.

Developers can build codes to decide what features could be included, influence metaverse users' social behavior, and configure privacy bubbles to restrict access to users' profiles. Blockchain, because it is the technology that promotes transparency of digital transactions, could be a foundation that builders can rely on to shape a governance structure for the Metaverse. One example of a transparent organization is the emergence of Decentralized Autonomous Organizations (DAOs) based on blockchain and smart contracts (Bellavitis et al., 2022). DAOs are fully democratized flat organizations that allow all users to participate in decision-making (Santana & Albareda, 2022; Bellavitis et al., 2022). Virtual world platforms such as Decentraland and the Sandbox use DAOs (Fernandez & Hiu, 2022).

One governance solution proposed by Fernandez and Hui (2022) is Modular Ethical Design (MED). Modular governance is a bottom-up approach to online platforms that consist of developing portable tools that can be adapted to different platforms (Dwivedi et al., 2022). According to Fernandez and Hiu (2022), modular-based architecture will allow the adaptation to the different requirements of a global platform. Dwivedi et al. (2022) remarked that the Metaverse does not stop at a geographical border of a location. Therefore, its governance should be layered with different forms and shapes.

The Modular ethical design (MED) proposed by Fernandez and Hui (2022) is based on the Human-Centered Design (HCD) philosophy by Norman (2005). The HCD requires the active involvement of all users in the design process and decision-making. For example, the MED will have a decision module for rules meters that will be responsible for overseeing the resources, a decision module dedicated to software code, a decision module dedicated to managing behavior, a privacy module responsible for the privacy of the avatars, a privacy module dedicated to sensory data, and a creation tool module. The MED will also address the positive social impact of the Metaverse in terms of accessibility (Fernandez & Hui, 2022).

Goldston (2022) conducted a case study to analyze Bit. Country, a metaverse within the Polkadot blockchain ecosystem, to determine if conventional business imperatives in the real world could be transferrable to a virtual world built on blockchain, non-fungible tokens (NFTs), and governance structure led by the users. In the case study, Goldston (2022) used Ball's (2022) concept of the Metaverse and discussed Ball's (2021)

eight enablers of the Metaverse: hardware; networking; compute; virtual platforms; interchange tools and standards; payments, metaverse content, services, and assets; and user behaviors. In Bit.Country, the governance structure was composed of four groups:

- Democracy - Anyone can participate in issuing proposals, feature requests, or any improvement to the ecosystem.

- General Council - Council members are elected by NUUM holders and manage the development of the Bit.Country ecosystem and protocol upgrades.

- Metaverse Council - Council members are elected by NUUM holders and are responsible for the overall operational issues within the metaverse. For example, these responsibilities could include code of conduct issues brought forth by the General Council and approvals for social tokens within a Bit.Country owner's metaverse.

- Technical Council - Council members are appointed by the General Council and are responsible for bug fixes. (Goldston, 2022, p.50).

Goldston (2022) concluded that based on its community-focused nature and decentralized government structure, Bit.Country could become a very attractive metaverse for potential users.

In an article about the legal implications of the Metaverse, Garon (2022) cited Ball's (2022) concept of the Metaverse to explain some critical characteristics of the Metaverse and discuss the legal implications of a ubiquitous Metaverse. A loose confederation of virtual worlds will characterize the emerging governance structure. De Zwart & Lindsay (2010) remarked that the value of the current Metaverse ecosystem lies

in its diversity and that diversity should be respected and considered as all stakeholders consider developing a governance framework. The authors recommend an approach to the governance framework in which governments can respect the rights of Metaverse users and service providers and clarify the relationship between the two entities regarding privacy, surveillance, ownership of intellectual property, transparency of terms, and age-appropriate content.

Dwivedi et al. (2022) noted that, given the current configuration of the Metaverse ecosystem, there is unlikely to be a single Metaverse platform. For those and other reasons, Garon (2022) affirmed that the Metaverse would be an international phenomenon, and the governance structure will be the mix of state authority, service providers' oversight, and participatory governance from the users for three main reasons: The first reason is that the laws vary from country to country. Therefore, achieving a global consensus on governing the Metaverse will be difficult. The second reason is that Metaverse is built on Web 3.0 powered by blockchain technology, enabling decentralization. The third reason is that the Metaverse is already in its fragmented state and has an impact, including legal implications. Therefore, it would be difficult to change it moving forward (Garon, 2022).

Dwivedi et al. (2022) argued for a governance structure with different layers. The authors call for a distinction between governance by the Metaverse and governance of the Metaverse. The governance by the Metaverse is related to the source code that controls the behavior of the users of a particular metaverse. The governance of the Metaverse deals with users' undesirable misbehaviors. Dwivedi et al. (2022) insisted that the

governance structure must consider the inherent ambiguity in the relationship between the person and the avatar. In addition, the governance of the Metaverse should address the relationship between service providers and users. Further, the governance structure should address the risk of criminals using cryptocurrencies and NFTs to launder money (Beioley, 2022).

Summary and Conclusions

In Chapter 2, I presented a summary and analysis of the literature on the Metaverse, the opportunities of the Metaverse, and its current and anticipated technological, safety, security, ethical, and governance challenges that need to be overcome for it to become a safe, dependable, viable, and a trusted environment for users. The review of the literature shows that researchers and Metaverse experts predict that the Metaverse will permanently transform our lives (Ball, 2022), affect human life and production (Fernandez & Hui, 2022), have an economy more extensive than the economy of the physical world in size (Ball, 2022), and blur the lines between the virtual and real between worlds (Dwivedi et al.,2022).

However, to achieve that vision, several challenges need to be overcome. Technological challenges are related to interoperability (Ball, 2022; Hackl et al., 2022), rendition, digital presence (Ausburn & Ausburn, 2014; Ball, 2022), and network capabilities (Ball, 2022; Lim et al.,2022). Other safety, security, and ethical issues are related to the essence of the avatar, the legal implications of the misbehaviors in the Metaverse, the regulation of the use of NFTs and Cryptocurrencies, the risks to children

using the Metaverse, and the rights of the Metaverse users (Beioley, 2022; Dwivedi et al., 2022; Fernandez & Hui, 2022; Wang et al., 2022).

Given those challenges, researchers have identified a lack of empirical research on the governance structure of the Metaverse as a research gap (Bibri, 2022; Schmitt, 2022; Upadhyay & Khandelwal, 2022). The research findings filled that gap by presenting the views of Metaverse strategy and innovation management experts on how business leaders and policymakers can work together to develop a governance framework for an inclusive, safe, and viable Metaverse. The findings of this study have implications for theory and professional practice by contributing original empirical data from Metaverse strategy and innovation management experts on how all the relevant stakeholders can collaborate to design an operable governance framework of a global Metaverse.

Chapter 3 focuses on research methodology. It includes the following topics: the research design and rationale of the study, the participant selection logic, the research instrument, the procedures for recruitment of the participants and data collection, the role of the researcher, and the issues of trustworthiness.

Chapter 3: Research Method

The purpose of this qualitative, multiple case study was to describe Metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation. There is little professional practice information in the business technology literature on developing a metaverse ecosystem within business organizations, with business leaders and policymakers disagreeing on a governance framework for the Metaverse, raising new questions of governance, access, ethics, and security (Andersen & Raine, 2022; Hackl et al., 2022). I used criterion and network sampling to conduct semistructured interviews with eight experts knowledgeable about the central study topic from experts' perspectives. Given the open nature of qualitative expert interviews, I answered my research question by collecting data from experts' breadth of knowledge and experience in a newly emerging research field (Döringer, 2021; Littig & Pöchhacker, 2014).

Technology innovation scholars and futurists have quickly identified several critical ethical problems with the developing Metaverse, specifically related to data security, regulation, safety, and the platform's negative impact on vulnerable social groups (Andersen & Raine, 2022; Harvard Business Review et al., 2022). In this context, a literature gap exists that must be addressed with more empirical research on the nature of the Metaverse and how business leaders and policymakers may collaborate on a governance framework to launch an inclusive and safe Metaverse to support the future of business innovation (Bibri, 2022; Schmitt, 2022). This study is significant to professional

practice as its results may inform business leaders and policymakers on shaping a
governance framework for a commercially successful, inclusive, and safe Metaverse
ecosystem to drive future business innovation (see Fernandez & Hui, 2022; Signe &
Dooley, 2022).

Chapter 3 provides a detailed presentation on the following: research
methodology and design rationale, the participant selection strategy, the researcher's role
in data collection and analysis processes and procedures, assumptions and limitations of
the study, ethical considerations, and trustworthiness issues.

Research Design and Rationale

A research design connects the data to be collected and the conclusions drawn
from the research to the research questions (Yin, 2017). A well-formulated research
question needs to define the purpose of the research, determine the appropriate methods,
guide the study planning, and frame the analysis and findings (Yale University, 2015).
My research question is the following: How do metaverse strategy and innovation
management experts describe their views on how business leaders and policymakers may
collaborate on shaping a governance framework for a commercially successful, inclusive,
and safe metaverse ecosystem to drive future business innovation?

The Metaverse has the potential to drastically transform our lives by permanently
changing how we work and think (Ball, 2022), affecting human societies, production, and
life (Fernandez & Hiu, 2022), and blurring the lines between the physical and the virtual
worlds (Dwivedi et al., 2022). However, technology innovation scholars and futurists
have singled out several critical ethical challenges with the current Metaverse ecosystem,

specifically related to data security, regulation, safety, and the platform's negative impact

on vulnerable social groups (Andersen & Raine, 2022; Dwivedi et al.,2022; Harvard

Business Review et al., 2022). Research has shown that a gap exists in the empirical

research on the nature of the Metaverse and how business leaders and policymakers may

collaborate to design a governance framework that will enable an inclusive, safe, and

viable Metaverse (Bibri, 2022; Schmitt, 2022).

This research was based on three key concepts: (a) Rogers's (1995) concept of

diffusion of innovations, (b) Ball's (2022) concept of the *Metaverse*, and (c) Fernandez

and Hiu's (2022) concept *of privacy, ethics, and governance* in the Metaverse. Rogers's

definition of the diffusion of innovation explains it as an idea, a practice, or an object that

an individual or other adopter perceives as new. Based on that innovation concept,

Rogers's diffusion of innovation theory can be used to consider the Metaverse ecosystem

as an innovation that societies and individuals need to adapt to (Ildas, 2022).

Ball (2022) explained the Metaverse as "a massively scaled and interoperable

network of the real-time rendered 3D virtual world that can be experienced

simultaneously and persistently by an effectively unlimited number of users with a

unique sense of presence and with continuity of data" (pp. 28–29). Fernandez and Hiu

(2022) identified privacy, governance, and ethical challenges as critical obstacles that

need to be overcome to arrive at a Metaverse that is inclusive, safe, and reliable for the

users. These challenges include data security and the safety of metaverse users, the

security of the data collected from XR devices and HMDs of Metaverse users, the

behavior and communication of the avatars in the virtual world containing sensitive

information about users that need to be protected from cybercriminals, physical safety risks for Metaverse users and bystanders present around them caused by the use of HMDs, and the security of the network on which the Metaverse operates (Ball, 2022; Dwivedi et al.,2022; Fernandez & Hiu, 2022).

The study was qualitative to ensure that the proposed method was aligned with the purpose of this research and provided adequate data for the research question (Tracy, 2019). The qualitative approach was utilized because it is suitable for the "naturalistic perspective and interpretive understanding" of human experience and expectations (Denzin & Lincoln, 2013, p. 10). Given that the purpose of the study required an in-depth exploration of Metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem, an emerging research topic, I applied an exploratory multiple case study design (Yin, 2017).

Interviews are one of the most practical and conventional data collection methods. Interviews help the researcher expose deeply rooted insights about the participants' lived experiences. According to Rubin and Rubin (2012), when "context and richness" are essential to the researcher and when the researcher wants to know the phenomenon from the inside out, qualitative interviews are an appropriate tool (p. 3). For Ravitch and Carl (2021), interviews help provide profound, rich, personalized, and contextualized data. In this study, I used expert interviews, an effective data collection method in multiple case study research (Bogner et al., 2018).

Selecting the sample for qualitative research is a critical step in the process. Patton (2015) remarked that "case selection is the foundation of qualitative inquiry. What you find from your inquiry will be determined by the cases you study" (p. 1). Unlike quantitative research and its reliance on probabilistic methods for selecting samples, qualitative research puts forth the concept of purposeful sampling, which consists of strategically "selecting information-rich cases to study, cases that by their nature and substance will illuminate the inquiry question being investigated" (Patton, 2015, p. 1).

There are several approaches to qualitative research. Some of the most common qualitative approaches include narrative research, phenomenology approaches, action research, grounded theory research, participatory action research, and case study research. Ravitch and Carl (2021) remarked that choosing one research approach over another depends primarily on the type of question and the research objectives. For this research, other qualitative research designs (e.g., phenomenology and narrative inquiry) were considered but ultimately not selected due to their limitations compared to the multiple case study approach. Yin (2017) observed that a researcher might favor choosing case study research when (a) the central questions of the study are "how" or "why" questions, (b) the researcher has little or no control over behavioral events, and (c) the focus of the study is a contemporary phenomenon (the case). To realize the purpose of this study of describing the views of Metaverse strategy and innovation management experts' on how business leaders and policymakers may collaborate to shape a governance framework for Metaverse that is safe, inclusive, and viable, I used an exploratory multiple case study (Yin, 2017).

The multiple case study design was selected for this research over other designs such as ethnography, narrative research, or phenomenology. The multiple case study is the right choice for an exhaustive study of the participants' viewpoints on a phenomenon in its natural setting (Halkias et al., 2022). An ethnographic design was not chosen because it was impractical, and its data collection method was primarily descriptive (Ravitch & Carl, 2021). Phenomenology design was not chosen because the "goal of phenomenological research is to discover and describe the essence of a given experience" (Ravitch & Carl, 2021, p. 23). The multiple case study is appropriate for this study because it can help expand extant theories, contribute original qualitative data, and confirm and extend existing knowledge (Halkias et al., 2022).

One of the advantages of multiple case study design is the use of multiple sources of evidence or triangulation. Yin (2017) remarked that an analysis of multiple case studies found that the studies that used multiple sources of evidence were more highly rated than those that did not. Another advantage of multiple case studies is the opportunity for the researcher to use replication logic (Halkias et al., 2022; Yin, 2017). Replication refers to the process in which the researcher examines the research question within each case and then attempts to replicate the insights in the other cases (Halkias et al., 2022).

Role of the Researcher

This study was qualitative in nature. Ravitch and Carl (2021) remarked that the researcher is the primary instrument in qualitative research. For that reason, the researcher's role is of central importance. That is why I was mindful of my personal

biases as I engaged in the process. That meant, I had to acknowledge my biases during the research's data collection, analysis, and interpretation phases. Halkias et al. (2022) remarked that one of the main characteristics of multiple case study research is the researcher's deep immersion in the phenomenon. Therefore, I was mindful of my biases and ensured that they did not creep into the data collection phase. To collect the data, I interviewed the participants using semistructured interviews. As an interviewer, I was cognizant that "qualitative interviews are relational, contextual and contextualized, non-evaluative, person-centered, temporal, partial, subjective, and non-neutral" (Ravitch & Carl, 2021, p. 127).

One of the most important components for me in this phase was to engage in reflexivity. Reflexivity refers to the researcher's readiness to conduct a self-assessment of her/his own identity, positionality, biases, assumptions, values, and subjectivities (Ravitch & Carl, 2021). To effectively engage in reflexivity, Ravitch and Carl (2021) recommended the following four best practices: prepare research memos., keep research journals, initiate dialogic engagement with intentionally selected individuals, and engage in researcher interviews to generate insights and reflection on the study topic and process. In addition, as an instrument of the research, I made sure that I was always aware of my positionality. According to Ravitch and Carl, positionality refers to the differing roles and relationships that researchers will have with the participants within and concerning the research setting, topic, and broader context. As a qualitative researcher, I consistently reflected on my different roles with the participants, and everyone involved in the study.

Completing the research required collaborating with diverse people, including research participants, committee chairs, committee members, professors, faculty members, and staff. Using the qualitative research value of collaboration (Ravitch & Carl, 2021), I made it a priority to collaborate with participants, colleagues, advisers, peers, and mentors to achieve valid and ethical results. I conducted the research study ethically and professionally and was cognizant of contrary evidence (Yin, 2017). In addition, I made sure that the interviews were conducted safely and ethically. I applied for and secured the authorization from the IRB (Walden University's approval number for this study is 01-25-23-0315779) to conduct the research and obtained the informed consent from the research participants. Finally, I ensured that the data collected were secured to maintain the participants' privacy.

Methodology

Participant Selection Logic

Population

The purpose of the study was to describe the views of Metaverse strategy and innovation management experts. I recruited participants among experts and academics who authored peer-reviewed scientific papers or policy reports that are indexed on Google Scholar between 2019 and 2023 on the issue of developing a Metaverse ecosystem for organizations and the challenges associated with it. The total number of these articles on Google Scholar was around 9,630 on December 6, 2022. For this multiple case study, I used purposeful sampling to select eight participants. The sample size is within the range recommended by Halkias et al. (2022), who noted that a sample

size of between five and 10 participants could yield pertinent themes and relevant

applications.

Participant Selection Strategy

Mills (2014, as cited in Harrison et al., 2017) defined methods as the mechanisms

and approaches used in the study, while methodology refers to the optics through which

the researcher contemplates and makes decisions about the study. According to Ravitch

and Carl (2021), "qualitative research involves systematic and contextualized research

processes to interpret the ways that humans view, approach, and make meaning of their

experiences, contexts, and the world" (p. 4). A multiple case study design enables the

researcher to explore a phenomenon by analyzing data collected from different cases and

treating each research participant as a separate entity (Yin, 2017).

The concept of replication logic by Yin (2017) guided the sampling criteria and

strategies used to select the people participating in this multiple case study. According to

Gehman et al. (2018), in replication logic, each case is evaluated independently instead of

being pooled together. The burgeoning theory is tested in each case to generate new

knowledge that may prove accurate and generalizable. In that sense, replication logic

helped fulfill the aim of this study of describing the views of Metaverse strategy and

innovation management experts by carefully selecting each case so that each particular

case either predicts similar results (i.e., literal replication) or predict contrasting results

(i.e., theoretical replication; Halkias et al., 2022; Yin, 2017). I used purposeful criterion

and network sampling strategies to recruit the participants for this multiple case study.

Merriam and Tisdell (2015) recommended that researchers use network sampling, which

consists of using key participants who meet the established criteria and asking them to refer other participants who meet the inclusion criteria until data saturation is reached. Data saturation is "the point at which no new information, codes or themes are yielded from data" (Braun & Clarke, 2021, p. 2).

A sample size of five to 10 participants is appropriate for a qualitative study (Schram, 2006). Schram (2006) noted that a larger sample size could be detrimental to achieving in-depth, qualitative research. I recruited eight subject matter experts who met the following inclusion criteria: adults over the age of 18 who (a) have authored at least five peer-reviewed scientific papers or policy reports on the issue of developing a Metaverse ecosystem for organizations, Metaverse governance framework development, and Metaverse security/privacy concerns, (b) hold a terminal degree from an accredited institution, and (c) possess in-depth expert knowledge regarding the central topic of the study (see Merriam & Tisdell, 2015). Semistructured interviews generated in-depth, rich data that helped answer the main research question and highlighted the individual expert's perception impacting the social practices (Döringer, 2020).

To ensure that the data collected helped achieve the study's goal, I selected experts who are considered authorities on the study's main topic and possess the necessary expertise to help achieve the stated objective of the study (Bogner, 2018). The participant selection logic of this study reflected previous similar studies that have interviewed experts to provide contextual and extensive knowledge about the subject matter being studied. In a study about designing the Metaverse, focused on inclusion, diversity, equity, accessibility, and the safety of users, Zallio and Clarkson (2022)

interviewed 12 experts from different countries whose expertise range from XR technologies, digital twins, NFT, and blockchain. Likewise, Leibbrandt and Louw (2022) interviewed 10 expert clinicians from different medical disciplines with experience in managing patellofemoral pain (PFP) on how to conduct biomechanical assessments in individuals with PFP in a clinical setting. In another analogous study, Sipper and Batra (2022) interviewed 12 experts on the importance of the rule of law and positive ethical climate in the decision to invest in foreign markets. The participants included attorneys who advised multinational corporation officers, arbitrators with significant international dispute resolution experience, corporate ethics compliance experts, global entrepreneurial business owners, and an academic specializing in international commercial law and dispute resolution.

In addition to data collected from the Metaverse experts, I used data from other sources. I relied on multiple sources of evidence to strengthen the study's validity (Halkias et al., 2022; Yin,2017). A sample size of five to 10 experts is appropriate for a multiple case study. The participants were recruited to conduct in-depth interviews until data saturation is reached (Fusch & Ness, 2015). Data saturation is "the point at which no new information, codes or themes are yielded from data" (Braun & Clarke, 2021, p. 2).

Instrumentation

The goal of instrumentation in a multiple case study is to collect data from multiple sources through an interview protocol and other data collection methods that support answering the central research question (Yin, 2017). Appropriate instrumentation that aligns with the study's purpose can contribute original data to the conceptual

framework and extend theory (Halkias & Neubert, 2020). Themes on how Metaverse strategy and innovation management experts describe how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation were generated.

The three sources of data collected for this study included (a) a semistructured interview protocol (see Appendix B) with items that are grounded in the literature review and conceptual framework of this study and field-tested by a panel of three experts, (b) archival data in the form of current business, economic and technology security reports on the Metaverse (Halkias et al., 2022; Merriam & Tisdell, 2015; Yin, 2017) and (c) reflective journal notes (see Merriam & Tisdell, 2015), which I kept throughout the study. In this exploratory multiple case study, the interview protocol items were developed to produce reliable data results to answer the study's central research question: How do Metaverse strategy and innovation management experts describe how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation?

Semistructured Interview Protocol

This study's primary data collection instrument was semistructured interviews with open-ended questions to ask Metaverse experts. The semistructured interview protocol (see Appendix B) consisted of five questions based on the conceptual framework and the extant literature. I selected the participants using a recruitment letter (see

Appendix A) that included the objective and nature of the study as well as an invitation to participate. The recruitment letter also included an informed consent detailing the ethical considerations, the voluntary nature of the participation in the study, the benefits and risks of being part of the study, any considerations of conflict of interest, as well as the commitment to maintain the privacy of the participants. The approximate length of each interview was between 28.5 minutes (Yin, 2017)

A preliminary field test was conducted to test if the interview protocol was credible, dependable, and applicable and if the interview questions would generate the desired results and answer the primary research question (Tracy, 2019). The field test auditors included the Dissertation Committee Chair and two subject matter experts. The three field test auditors all have experience in teaching or research related to AI for Business, Technology Innovation, and Ethical Challenges of AI: Dr. Daphne Halkias, the Dissertation Committee Chair; Dr. Nicholas Harkiolakis, Professor of Technology and Innovation at Ecole des Ponts Business School, Paris, France; and Prof. Paul W. Thruman, Professor of Management and Analytics at the Mailman School of Public Health at Columbia University, New York City, USA. The field test supported the credibility and trustworthiness of the study's qualitative findings (Guba & Lincoln, 1994).

Archival Data

One of the advantages of the multiple case study design is the opportunity to use different sources of evidence and data triangulation (Yin, 2017). According to Williams and Morrow (2009), data triangulation adds quality to the data. Data triangulation, by

developing convergent evidence, allows the researcher to conduct an in-depth investigation of a phenomenon in its context (Yin, 2017) and helps enhance the validity of the research (Ravitch and Carl, 2021).

To find archival data that will support the study's findings, I explored government resources such as Congress. Gov (https://www.congress.gov/) and UNdata (https://data.un.org/Congress). In addition, I searched websites such as Statista (https://www.statista.com). Merriam and Tisdell (2015) remarked that when dealing with archival data, it is essential that the researcher ascertains the conditions under which the data were gathered. The authors recommended that qualitative researchers fully appreciate the specific purpose and reason behind the production of the archival data in their interpretation of archival data.

Reflective Journal Notes

Another source of data for this multiple case study was the reflective journal notes. Phillippi and Lauderdale (2018) remarked that reflective field notes are crucial to rigorous qualitative research. Merriam and Tisdell (2017) agreed and argued that field notes are the basis of qualitative research data and that without field notes, there is no data. Reflective journal notes serve many functions, but one of their primary roles is to help the researcher develop thick descriptions of the study's contextual situations (Phillippi & Lauderdale, 2018; Ravitch & Carl, 2021).

This study's primary collection data method was a semistructured interview of Metaverse experts using Zoom. According to Phillippi and Lauderdale (2018), the best approach to field notes for interviews is to record them immediately after the interview.

To ensure I have reflective field notes that accurately capture the phenomenon, I wrote quick notes during the interview by ensuring that I will have detailed observations about the interview setting and the participants' behavior.

Merriam and Tisdell (2015) remarked that while it is acceptable for qualitative researchers to write quick notes during the interview, the observation notes must be written in a narrative format and be typed or dictated immediately after the interview and observation. Maharaj (2016) recommended that, in writing the reflective notes as participant observers, qualitative researchers consider their status as an insider or outsider, their place on the continuum of observer-participant, and their subjectivity in the research process.

Procedures for Recruitment, Participation, and Data Collection

Yin (2017) noted that multiple case study research enables the researcher to investigate phenomena such as individuals within a specific context as a separate unit of study. The central phenomenon of this study is the individual, and the unit of analysis is the Metaverse strategy and innovation, management expert. According to Eisenhardt and Graebner (2007), the multiple case study design is an appropriate research design for a qualitative study whose aim is theory extension. To recruit the participants, I used network sampling strategies (see Halkias & Neubert, 2020; Tracy, 2019).

Expert interviews are considered a standard research method in the qualitative paradigm (Bogner et al., 2018; Littig & Pöchhacker, 2014). Experts possess the specific knowledge to help me meet the study's purpose. In exploratory studies, expert interviews are more efficient in generating the desired data (Bogner et al., 2018). Interviewing

subject matter experts allowed me to collect in-depth data that helped reach data saturation with the sample size of eight participants (see Merriam & Tisdell, 2015).

The participants were selected using Google Scholar to look for Metaverse strategy and innovation management experts who met the inclusion criteria. In addition, to find additional participants, I explored LinkedIn, a professional social network. Once the potential candidates were identified, I posted a recruitment letter to the participants and contacted them by email or message, asking them to participate in the research study.

Once I secured the IRB authorization and obtained the informed consent forms, I began the data collection phase of the study. It started with scheduling an interview with each participant using Zoom (https://zoom.us), a videoconference technology (see Oliffe et al., 2021; Saarijärvi & Bratt, 2021). According to Saarijärvi and Bratt (2021), interviews conducted via video, telephone, or online are credible and trustworthy substitutes for traditional face-to-face interviews. Oliffe et al. (2021) remarked that qualitative study designs with Zoom interviews as options, bring an innovative quality to the qualitative data collection methods.

The study was exploratory. Bogner et al. (2009) remarked that expert interviews are a more effective data collection method in exploratory studies than participatory observation or quantitative methods approaches. Experts are considered authorities in a particular subject and recognized for their specific mastery or standing in the community (Döringer, 2021). Researchers from different disciplines have used expert interviews to collect research data. Mergel et al. (2019) used expert interviews to develop a conceptual framework for digital transformation in the public sector. In a study about risk assessment

in gene therapy, Bittlinger et al. (2022) used expert interviews about risk assessment in gene therapy and analyzed the data to present a SWOT analysis of a structured approach to risk assessment of gene therapy and gene editing.

After Walden University's IRB approved the study, I sent each potential participant a recruitment letter asking them to participate. In addition, I attached to the recruitment letter a consent form that included the following: (a) an explanation of the objectives of the study, (b) an explanation of the option for the participants to withdraw, (c) the different processes involved in the study, (d) the potential risk or discomfort associated with participating in the study, (e) the timeframe of the study, (f) a statement of voluntary participation and no consequences for refusal, (g) the description of the participants' rights to confidentiality, and (h) the usefulness of this study for business leaders and policymakers on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation. The candidates who agreed to participate in the study were formally invited to participate and were asked to provide their contact information, such as a phone number and email address.

Qualitative research "involves systematic and contextualized research processes to interpret how humans view, approach, and make meaning of their experiences, contexts, and the world (Ravitch & Carl, 2021, p. 4). Qualitative interviews enable the researcher to investigate complex, contradictory, or counterintuitive issues (Rubin & Rubin, 2012). Qualitative interviews are relational (Ravitch & Carl, 2021). That means the interviewer is responsible for connecting with the interviewee to establish a trusting

relationship. To collect the data, I used the semistructured interview format. Merriam and

Tisdell (2015) remarked that semistructured interviews are guided by a list of questions

or topics to be examined. In the interview protocol, I developed open-ended questions

that aligned with the topic of the study (Merriam & Tisdell, 2015).

The questions were presented to capture Metaverse strategy and innovation

management experts' views on how business leaders and policymakers may collaborate

on shaping a governance framework for a commercially successful, inclusive, and safe

metaverse ecosystem to drive future business innovation (see Yin, 2017). The interviews

generated data that helped answer the research question. If data saturation is not reached,

Merriam and Tisdell (2015) recommended using network sampling, which consists of

using key participants who meet the established criteria and asking them to refer other

participants who meet the inclusion criteria until data saturation is reached.

The approximate length of an interview was 28.5 minutes. The interviews were

recorded using the recording feature of the Zoom application and the recording files were

saved to my computer. The interview data were transcribed using the transcriber

application Temi. In addition, I wrote reflective journal notes to reflect on the process

(Stake, 2013). To store and manage the data, I used Microsoft Excel software. Microsoft

Excel is an effective tool for storing data, documenting data from interviews, analyzing

data with a thematical approach, and categorizing information through numbering (Tracy,

2019).

After each interview, I thanked each expert and informed them that I may contact

them if I needed to follow up on their statements. In addition, I reached out to each

interviewee and sent them a thank you note with a copy of the interview transcript for them to validate (Merriam & Tisdell, 2015; Tracy, 2012). To ensure the participants' privacy is protected, I took the necessary steps to maintain confidentiality. For example, to ensure confidentiality, I used pseudonyms (Ravitch & Carl, 2021). Furthermore, I made every possible effort to ensure the confidentiality of the participants' data by being careful about how I disclosed the data and avoided deductive disclosure, which consists of the ability to identify participants based on the nature of the data shared (Ravitch & Carl, 2021).

The data collected was stored securely on my computer and in a secure portable drive. The storage areas are password-protected, and I am the only person who will have access to the data collected. Finally, I took precautionary steps to avoid being exposed to cybersecurity risks such as Malware, Ransomware, Distributed denial of service (DDoS), Spam, or Phishing.

Data Analysis Plan

A case study design connects the data collected and conclusions to the primary research questions (Yin, 2017). Harrison et al. (2017) noted that the case study method is convenient for comprehensive, in-depth studies of complex issues in a setting where the limits between the phenomenon and the context are unclear. In the multiple case study approach, each case is considered and analyzed by studying the data to learn about the context (within-case analysis). After each within-case analysis is completed separately, cross-case analysis is conducted to identify patterns and generalize across cases (Merriam & Tisdell, 2015). According to Halkias and Neubert (2020), the multiple case study

design is an appropriate method for "how" and "why" research questions that aim to address a gap in the literature.

The role of the qualitative researcher is to ask questions through methods such as responsive interviewing to uncover the meaning people make of their own lives (Ravitch & Carl, 2021; Rubin & Rubin, 2012). For this study, I used research and interview questions to gain insight into Metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a Metaverse that is viable, safe, and secure for all users. In addition, I maintained a chain of evidence to increase construct validity and allow the reader to understand the progression from the initial research question to the findings of the multiple case study (Yin, 2017).

To collect the data, I used the semistructured interview format. Merriam and Tisdell (2015) remarked that semistructured interviews are guided by a list of questions or topics to be examined. These could include structured and less structured questions or a list of flexibly worded questions. The data from the cases was analyzed using replication logic by comparing the data between cases to find patterns that will help generate theoretical constructs, relationships among those constructs, and even propositions (Halkias et al., 2022). Yin (2017) recommended that the researcher plays with the data by looking for emerging patterns, insights, or concepts to start the data analysis. Ravitch and Carl (2021) remarked that qualitative data analysis encompasses processes that the researcher uses to examine the data to generate analytic themes that could turn into conclusions that help answer the research question.

One of the advantages of multiple case study design over other qualitative method designs is the ability to use data triangulation (Yin, 2017). To collect the data, I used both primary and secondary data to achieve the research goal of an in-depth description of the views of Metaverse experts on how business leaders and policymakers may collaborate on shaping a governance framework for the Metaverse. Halkias and Neubert (2020) recommended the application of systematic comparison using cross-case analysis to accentuate the differences and similarities and their impact on the study's conclusions.

Descriptive coding was the primary analytic method for this research. This entailed attaching symbolic meaning to data subsets and creating keyword phrases and groupings for data classification (Saldaña, 2016). According to Ravitch and Carl (2021), "coding is a process of assigning meaning to data" (p. 264). Through the coding process, the researcher can identify codes, themes, and categories that will help interpret the data. There are two types of coding: inductive coding, which is the coding generated from the data collected, and deductive coding, which refers to coding from other sources (Ravitch & Carl, 2021). Unlike other data analysis methods where items are counted, in qualitative data analysis, coding aims to "fracture" the data to reorganize the items based on their descriptions and distinctly illustrate the connections between them within the same category (Maxwell, 2012).

This study's central phenomenon is the individual, and the unit of analysis is the Metaverse strategy and innovation management expert. To analyze the data, I utilized the cross-case synthesis method for data analysis to help generate themes representing the convergence and divergence of participants' experiences within and between cases (Yin,

2017), including using within-case analysis in which each case is treated on its own and cross-case analysis to find abstractions across cases (Merriam & Tisdell, 2015). Yin (2017) noted that unlike data aggregation approaches in other qualitative approaches, the goal of cross-case synthesis is to "retain the integrity of the entire case and then to compare or synthesize any within-case patterns across the cases" (p. 164).

The coding of the data entails ascribing meaning to the data (Ravitch & Carl, 2021) and developing themes and patterns by identifying connections across cases (Halkias et al., 2022; Patton, 2014). Halkias et al. (2022) recommended transcribing the data from interviews and field notes from each case, organizing the data sets, marking each with a line number, and matching them to the appropriate interview. The coded data and the reflective notes were transcribed into Microsoft Excel to ensure accuracy and ease of retrieval (Saldaña, 2016).

An effective data analysis strategy is the "ground up" strategy which consists of going through the data to identify patterns that can become the beginning of analytic building blocks that can transform into codes (Yin, 2017). The ground up strategy is appropriate for descriptive coding in case study data analysis (Saldaña, 2016). The ground up strategy helps the researcher align emerging concepts and patterns to the study's research question (Yin, 2017).

The primary sources of data for this study included interview data, data from the extant scholarly literature, reflective field notes, archival data in the form of current business, economic and technology security reports on the Metaverse (Halkias et al., 2022; Merriam & Tisdell, 2015; Yin, 2017). Yin (2017) remarked that an analysis of

multiple case studies found that the studies that used multiple sources of evidence were more highly rated than those that did not. In addition, Ravitch and Carl (2021) noted that triangulation helps enhance the validity of the research.

In qualitative research, the conceptual framework guides the study and is derived from the study (Ravitch & Carl, 2021). Ravitch and Carl (2021) remarked that an integrative approach to data analysis includes using the nascent conceptual framework to inform the data analysis process and interpretations of the data to convey the connections among the research, the question, the objective of the study, the research context, the researcher's positionality, and the research design. As the primary instrument of the research and the principal author and interpreter of the conceptual framework, I used field notes (Merriam & Tisdell, 2015) to reflect on my positionality to make the connections between the data and the conceptual framework of the study. Halkias et al. (2022) noted that a systematic analysis of the data collected in multiple case study designs could lead to theory extension.

As a researcher, I followed the data analysis process by choosing the cases that were most likely to elucidate the research questions (Yin, 2017). Then, I analyzed and categorized the data. In addition, I coded the data starting with the ground up strategy to identify emerging patterns and used cross-case synthesis to generate valid and trustworthy results (Yin, 2017). Furthermore, I conducted the research ethically and safely. That meant, in addition to the ethical obligations of clearing the IRB and securing the informed consent form, I focused on other ethical considerations, including those related to my role as an instrument of the research.

During the research process, I worked on maintaining a professional relationship with the participants and all individuals involved with the research and reflected on my role as the research instrument. I addressed my biases and implicit theories, remained transparent with the participants about the goal of the research, the expectations, the process, the roles, focused on ensuring the confidentiality of the participants, and ensured that the data collected was placed in a secure location (Ravitch and Carl, 2021). In so doing, I ensured that each case would contribute to answering the objective of this research, which consisted of describing the views of Metaverse strategy and innovation management experts on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation.

<div align="center">**Issues of Trustworthiness**</div>

The objective of any researcher, whether qualitative or quantitative, is to produce research findings that are trustworthy and useful. While qualitative inquiry as a research method has been increasingly gaining acceptance, the trustworthiness of qualitative research studies has been questioned by positivists (Shenton, 2004; Williams & Morrow, 2009; Yin, 2017). In response to the critics of the validity of qualitative inquiry, Lincoln and Guba (1985) developed criteria to assess the validity of qualitative research that corresponded to the constructivist paradigm of scientific inquiry (Shenton, 2004, Yin, 2017, Merriam & Tisdell, 2015).

Williams and Morrow (2009) suggested that to achieve trustworthiness, qualitative researchers needed to address three aspects of trustworthiness in their studies:

integrity of the data, a balance between reflexivity and subjectivity, and clear

communication of findings. Amankwaa (2016) noted that qualitative researchers must

plan trustworthiness ahead of time in a protocol that must include the dates and times that

trustworthiness activities occur. Kyngäs et al. (2020) affirmed that for a qualitative study

to be trustworthy and helps the reader understand the significance of results, the reporting

of the results must clearly convey the relationship between the data and the results.

Failure to do so, warned the authors, could threaten the study's trustworthiness. The

standards to assess trustworthiness in qualitative research include credibility,

transferability, dependability, and confirmability (Kyngäs et al., 2020; Merriam &

Tisdell, 2015, Shenton, 2004).

Credibility

Credibility in qualitative research refers to the extent to which the findings

reported by the researcher reflect the reality of the lived experiences of the participants

(Merriam and Tisdell, 2015). It is the equivalent of internal validity in quantitative

research. Kyngäs et al. (2020) identified two conditions for achieving credibility:

conducting the research in such a way as to ensure that the findings will be believable by

the readers and ensuring that the reporting of the findings manifests the credibility of the

study. Lincoln and Guba (1985, as cited in Nowell et al.,2017) recommended several

strategies to achieve credibility, including prolonged engagement, persistent observation,

data collection triangulation, and researcher triangulation.

One of the strategies that I employed to achieve credibility is prolonged

engagement, which consisted of spending as much time as possible with participants to

have a deeper understanding of the phenomenon (Shenton, 2004). I used the multiple

case study method in this study, a well-established qualitative research method (Merriam

& Tisdell, 2015; Yin, 2017). Shenton (2004) noted that one of the ways to establish

credibility is to adopt well-established research methods. In addition, I used data

triangulation. Yin (2017) noted that using data triangulation is one advantage of multiple

case study design over other qualitative designs. Member checks is another strategy I

used to establish credibility for the study. Member checks refer to the process in which

the researcher verifies with the participants that the study's findings capture their true

intended meanings (Kornbluh, 2015). Lincoln and Guba (1985) consider member checks

the most critical strategy to measure the trustworthiness of qualitative studies (Kornbluth,

2015; Ravitch & Carl, 2021).

Transferability

Transferability refers to the extent to which the study findings are generalizable

(Nowell, 2017). It is equivalent to external validity in quantitative research (Merriam &

Tisdell, 2015; Yin, 2017). Yin (2017) noted that the ability to seek generalization is

influenced by the form of the initial research question chosen by the researcher. The

author noted that the most opportune time to set the ground rules for the transferability of

case study research is during the research design phase. Kyngäs et al. (2020) observed

that it is essential to distinguish between generalizations in quantitative research and

transferability in qualitative research. While the former refers to extending results from a

sample to a general population, the latter concerns how the readers will apply the results

to their own contexts. In this sense, with transferability, the burden lies with the

individual trying to apply the study in a different setting rather than with the original researcher, who does not know the site to which transferability is being attempted (Merriam & Tisdell, 2015).

For this study, I described in detail the sampling method, the inclusion criteria, the data collection, and the data analysis methods. Kyngäs et al. (2020) noted that a critical factor in achieving transferability is the researcher's ability to share the entire research process and study results transparently. Another strategy that I used to achieve transferability is the use of thick descriptions. Thick descriptions "refers to a comprehensive description of the setting, events, relationships, physical environment, people, and phenomena encountered in fieldwork" (Rashid et al., 2019, p.6).

Dependability

Dependability refers to the extent to which a multiple case study's data collection, analysis, and theme development process are accurate and consistent (Halkias et al., 2022). Dependability is the equivalent of reliability in quantitative research. Merriam and Tisdell (2015) declared that the concept of reliability, as understood in the positivist approach, as the extent to which research findings can be replicated, does not apply to qualitative inquiry because human behavior is constantly changing. Hence, the proposition by Lincoln and Guba (1985) of using the concepts of "dependability" and "consistency" in qualitative research (Merriam & Tisdell, 2015). According to Shenton (2004), Lincoln and Guba (1985) observed that there is an association between dependability and credibility and that achieving one invariably leads to realizing the other.

Kyngäs et al. (2020) noted that a study could signify high dependability when a different researcher can quickly pursue the audit trail of the initial investigator. Shenton (2004) remarked to ensure the dependability of a qualitative study, a researcher should report the process of the study in detail and include sections discussing the followings: The research design and its implementation, the description of what was planned and executed on a strategic level, the description of the operational details of data gathering, addressing the minutiae of what was done in the field; and a reflective appraisal of the project, evaluating the effectiveness of the process of inquiry undertaken.

To achieve the study's dependability, I followed Merriam and Tisdell's (2015) recommendation of using triangulation, peer examination, investigator position, and an audit trail. Audit trail refers to the process that will "allow any observer to trace the course of the research step-by-step via the decisions made and procedures described" (Shenton, 2004, p. 72). In other words, the audit trail gives readers an account of how the researcher made his decisions and choices about the methods and the theories used in the study, as well as the rationale behind them (Nowell et al., 2017). For example, one way a researcher can establish an audit trail, according to Lincoln and Guba (1985), is to take written notes of each peer-debriefing encounter (Nowell et al., 2017).

Confirmability

Confirmability is a "measure of how well the study's findings are supported by the collected data" (Kyngäs et al., 2020, p. 46). In other words, with confirmability, the researcher must demonstrate how the conclusion and interpretations were arrived at (Nowell et al., 2017). Confirmability is the equivalent of the concept of objectivity in

quantitative research. An important consideration with conformability is the researchers'

willingness to address their biases and prejudices (Shenton, 2004). Merriam and Tisdell

(1995) pointed out that "it is the training, experience, and "intellectual rigor" of the

researcher, then, that determines the credibility of a qualitative research study. Lincoln

and Guba (1985, as cited in Nowell et al.,2017) declared that confirmability is achieved

when the other three standards of credibility, dependability, and transferability are

realized. According to Nowell et al. (2017), Koch (2014) recommended that research

authors share the reasons behind the theoretical and methodological decisions to help

readers understand how and why those decisions were made.

To enhance the research's confirmability, I used triangulation strategies (Ravitch

& Carl, 2021) and audit trails (Kyngäs et al., 2020). In addition, I engaged in researcher

reflexivity (Kornbluh, 2015; Nowell, 2017). To that effect, I discussed how my biases

and prejudices may influence the research process and data analysis and ensured that the

study's findings reflected the experiences and ideas of the participants, and not my

preconceived ideas or predisposition (Shenton, 2004).

Ethical Procedures

The validity and reliability of qualitative research studies hinge vastly on the

researcher's ethics (Merriam & Tisdell, 2015). Yin (2017) remarked that, like any social

scientist, a case study researcher should aim to conduct the research with the highest

ethical standards possible. This is particularly important given that the qualitative

research approach follows the interpretive approach to social science. According to

Merriam and Tisdell (2015), Tracy (2103) observed that ethical issues in qualitative

research could be related to procedures such as the requirements of the IRB, the "do no harm" principle, and informed consent. Ethical issues can also be situational such as when the researcher faces an ethical dilemma in the research context. Ethical issues can be relational such as when the researcher needs to be aware of her/his impact on the research participants and ensure that she/he treats the participants with dignity and respect.

This multiple case study research is considered a human subjects research. The principles and guidelines under which human subjects research should be conducted were developed in the "Belmond Report". The report highlighted the three principles of respect for persons, justice, and beneficence (Miracle, 2016). These principles guide the recommendations for obtaining informed consent, assessing risks and benefits, and recruiting participants. The report's focus on protecting the safety, privacy, health, and welfare of the participants represented an important positive development given the problematic and unethical practices of the past (Tracy, 2019).

The first principle is the principle of respect for persons. (Yin, 2017) remarked that before the start of the research, qualitative researchers need to clearly outline, in the research design, how they will plan to protect the human subjects in their studies. As a researcher and the primary instrument of the research, I followed the principles of the *The Belmont Report*. I conducted the research with "special care and sensitivity" (Yin, 2017, p. 88). That entailed obtaining informed consent from all participants, protecting participants from harm, including deception, and protecting the privacy and confidentiality of all participants.

The second principle is the principle of beneficence. Halkias et al. (2022) remarked that the principle of beneficence was developed to ensure that a study's benefits reasonably exceed its risks. In addition, the researcher should make every effort to prevent any physical and psychological harm to the research participants because of their involvement in the study. To adhere to the principle of beneficence, I focused on ensuring the confidentiality of the participants and to only disclose participant's information if they gave their consent.

The third principle of justice refers to the researcher's responsibility to ensure that all participants in the research are treated fairly and that they can take advantage of the potential benefits of the study (Halkias et al., 2022). One of the most important factors regarding this principle is ensuring that I shared with all participants the inclusion criteria before the start of the study. As a qualitative researcher, adhering to the principle of justice meant ensuring that I treated all participants fairly and that I applied researcher reflexivity to be aware of my biases and positionality throughout the study. In addition, I made sure that the participants knew that their involvement was voluntary without undue influence and that they could withdraw at any time without repercussions. Furthermore, I gave all participants access to the transcripts of their interviews.

Walden University requires that students who conduct human subjects research obtain the approval of the IRB. At Walden University, the IRB approval process has four steps: First, the student researcher completes Form A (Description of Data Sources and Partner Sites). The completed form will allow the IRB to guide the student. Based on the completed form information, the IRB provides the student researcher with a list of

required documents that must be submitted. Second, the student researcher gathers the documents requested in the first step and addresses any ethical issues raised.

The IRB will review the documents and issue written feedback called Preliminary Ethics Feedback (PEF) service. After that, the IRB will contact the student and committee chair for potential modifications to the IRB documents. In the final step of the process, the IRB will hold an official ethics review to examine the updated documents and give approval of the documents and the procedures of the study. The data collection process cannot begin until the student researcher receives an approval email from the IRB. After the approval, the research participants will have the opportunity to ask questions about the research process and be reminded of the option to withdraw their participation at any time (Stake, 2010).

To conduct research that complies with the ethics of conducting human subjects research, I did the following:

1. I did not engage in any of the following with the research participants: pressure; undue influence; motivation; or offering rewards or compensation for participating agreements.

2. I ensured that the participation in this study was voluntary. I ensured that participants were aware of their rights to withdraw from the study at any time without fear of any consequences.

3. To ensure confidentiality, I randomly assigned numeric identifiers or pseudonyms to the names of the participants during the data collection, analysis, and interpretation phases of the process.

4. If an audit inquiry occurs, I will comply and ensure that all participants' identities remain protected.

5. I discussed with each participant my commitment to ensuring confidentiality. I explained to each participant how I plan to secure the data and remove any personal identifiers from the final report to avoid any deductive disclosure.

6. I focused on building authentic relationships with each participant based on respect, paying attention to, and addressing any concerns and needs of each participant, being transparent, and addressing the issues of reciprocity that arose during the process.

7. I conducted the research in a way to ensure that no psychological harm came to any participant because of the study by being mindful of how I interacted and communicated with each participant.

8. To add depth to the research findings, I focused my inquiry on the participants' professional experience instead of their personal life.

9. I shared with the participants the interview protocol and informed each participant of my intention to record the interview using the recording feature of Zoom. I allowed each participant to express their concerns and responded accordingly.

10. I requested and obtained the approval of the study from the IRB before I began the data collection phase of the process.

11. After each interview, I reached out to each participant and sent them a copy of the interview transcript for them to validate. In addition, before the study's

publication, I will provide each participant with a copy of the summary of the final research paper to confirm that the privacy of each participant was protected.

12. The electronic data collected was stored on my computer and in a secure portable drive. The hard copies were stored in a secure area where I am the only one who can access them. The electronic storage areas were password-protected, and I am the only person with access to the data.

13. Per Walden University standards, five years after collecting the data, I will discard all the files and destroy all hard and soft data. When completed, I will inform the participants.

Summary

The purpose of this qualitative, multiple case study was to describe Metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation. The primary data collection instrument of this study was a semistructured interview with open-ended questions, a proven method to help generate in-depth, rich data that could answer the research question and accentuate the individual expert's perception impacting the social practices (Döringer, 2020). Other data sources for this study included archival data and reflective journal notes. The data analysis used replication logic. The sample size of this study consisted of eight Metaverse experts who are knowledgeable about the central topic of the study.

The reporting and analysis of the data will be presented in Chapter 4. The chapter will include a detailed description of the data collection process, including the number of participants, the instruments used, and how the data were recorded. In addition, Chapter 4 will include a section dedicated to the study's results, where I will present the data supporting the findings. Chapter 4 will also include sections dedicated to discussing the evidence of trustworthiness and the study's data analysis. The chapter ends with a summary section.

Chapter 4: Results

The Metaverse represents a strategic opportunity for a wide range of stakeholders because of the expectation that it will become the next dominant computing platform, causing future economic and social transformations similar to those of the internet and mobile web (Entsminger et al., 2022; Ning et al., 2022). The central research question of this study was as follows: How do Metaverse strategy and innovation management experts describe their views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation?

This study was framed by three key concepts that focused on the significance of developing empirical research on how business leaders and policymakers may collaborate on creating a governance framework to launch an inclusive and safe Metaverse strategy to support the future of business innovation (Bibri, 2022; Schmitt, 2022; Upadhyay & Khandelwal, 2022): (a) Rogers's (1995) concept of *diffusion of innovations*, (b) Ball's (2022) concept of the *Metaverse*, and (c) Fernandez and Hiu (2022) concept of *privacy, ethics, and governance* in the Metaverse. This study is significant to theory extension by contributing original, qualitative data to address a significant gap in the literature on empirical research on how business leaders and policymakers may collaborate on a governance framework to launch an inclusive and safe Metaverse strategy to support the future of business innovation (see Bibri, 2022; Schmitt, 2022).

In this chapter, I analyze the results of this multiple case study using the ground up strategy and the cross-case synthesis techniques (Yin, 2017). The ground up strategy,

which consist in of examining the interview data, reflective journal notes, and archival data, and assigning codes to various units of data to develop categories and themes (Merriam & Tisdell, 2015; Yin, 2017), helped me align emerging concepts and patterns to the study's research question (Yin, 2017). With the cross-case synthesis, I started with the within-case analysis by considering each unit of analysis (each case) separately and analyzing the data to learn about the context. The within-case investigations included an analysis of "how" and "why" each individual participant engaged in the process. After each within-case analysis was completed separately, I conducted the cross-case analysis to identify patterns, generalize across cases (Merriam & Tisdell, 2015), and uncover literal and theoretical replications. In addition, in Chapter 4, I describe the research setting, the demographics, and the data collection procedures. Then, I discuss the data analysis and the evidence of trustworthiness. Finally, I present the results of the study and end the chapter with a summary section.

Research Setting

The data for this qualitative multiple case study was collected from eight Metaverse experts who met the following inclusion criteria: adults over the age of 18 who (a) have authored at least five peer-reviewed scientific papers or policy reports on the issue of developing a Metaverse ecosystem for organizations. Metaverse governance framework development; and Metaverse security/privacy concerns, (b) possessed a terminal degree from an accredited institution, and (c) possessed an in-depth expert knowledge regarding the central topic of the study (Merriam & Tisdell, 2015). I used criterion and network sampling to recruit the participants and conducted semistructured

interviews to gain the perspective of eight experts knowledgeable about the central topic of the research study.

I recruited the participants through Google Scholar and LinkedIn by sending them a message asking them to participate in the study. The message included the consent form that addressed the following: (a) an explanation of the objectives of the study, (b) an explanation of the option for the participants to withdraw, (c) the different processes involved in the study, (d) the potential risk or discomfort associated with participating in the study, (e) the timeframe of the study, (f) a statement of voluntary participation and no consequences for refusal, (g) the description of the participants' rights to confidentiality, and (h) the usefulness of this study for business leaders and policymakers on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation. The recruitment letter asked the potential participants to signify their agreements to participate in the study by responding with the phrase "I consent."

After I received the consent from the participants, I scheduled an interview with each participant in accordance with their preferred method. I conducted the interviews through Zoom. Each participant was sent a confirmation email with a link to connect to the Zoom meeting and instructions on how to access the meeting and the duration of the interview (30 to 45 minutes).

To ensure that each participant was comfortable with the topic and understood the context, I developed a semistructured interview protocol (see Appendix B) with items that are grounded in the literature review and the conceptual framework of this study. The

interview protocol was field tested and validated by a panel of three experts. The interview protocol was shared with the participants to review before the interview.

The sample size of eight participants is within the range recommended by Halkias et al. (2022), who noted that a sample size of between five and 10 participants could yield pertinent themes and relevant applications. The interview data were collected through Zoom interview with the two participants who elected to do Zoom interviews. One participant preferred to record the answers to the interview questions and provide me with the digital file of the recordings for me to transcribe. Five of the participants elected to provide their answers to the interview questions in a written format.

The interviews went well without any major technical difficulties. Each interview was recorded with the consent of the participant. Before the start of the interview, I made a genuine effort to develop a good rapport with each participant, stayed neutral vis-à-vis what each participant was saying, and paid particular attention to how my behavior and biases may affect each participant. I made sure to respect the time of each participant by ensuring I conducted the interviews within the agreed upon timeframes. For example, while I was communicating with one of the participants to schedule the interview, he remarked that 30 to 45 minutes was more time commitment than he thought he could do. I told the participant that the interview would take as long as he wanted it to take, and that he could stop the interview at any time. I asked the participant how much time he could spare for the interview. The participant told me that he could do between 15 minutes to 30 minutes. I made the commitment to the participant that I would complete the interview within that timeframe. On the day of the interview, I reminded the

participant of the agreement and made sure the interview was completed within that timeframe (The interview lasted 21 minutes). The participant was pleased with the fact that I accommodated his request and was mindful of that fact throughout the interview. After each interview, I thanked each participant for their participation, and within 72 hours of the interview, I sent each participant the transcript of their interview to review and validate.

To transcribe the interview data, I used the software, Temi, which was very affordable and efficient. The transcripts were highly accurate. However, I had to spend some time reviewing the transcripts and fixing some minor errors to ensure that the transcripts accurately reflected the views of the participants. Once I was satisfied with the accuracy of the transcripts, I sent them to the participants to complete the member check process.

Demographics

Eight Metaverse experts met the inclusion criteria and agreed to participate in the study. Each participant was an adult male over the age of 18 who has authored at least five peer-reviewed scientific papers or policy reports on the issue of developing a Metaverse ecosystem for organizations; Metaverse governance framework development; and Metaverse security/privacy concerns. In addition, all eight participants had a terminal degree from an accredited institution and possessed in-depth expert knowledge of the central topic of the research. To preserve the confidentiality of the participants' demographic information and data, I assigned each participant a pseudonym that

consisted of a combination of the generic letter "P," which stands for "Participant", and a numerical identifier.

The sample size of the study consisted of eight men. The average age of the participants was 52 years old. The youngest participant was 40 years old, while the oldest participant was 63 years. Six participants held a PhD degree or equivalent, one participant had a DBA degree, and one participant held a JD degree. All participants have published at least five peer-reviewed scientific papers or policy reports on the issue of developing a Metaverse ecosystem for organizations, Metaverse governance framework development, and Metaverse security/privacy concerns.

Table 1

Participant Information and Demographics Data

Participant	Age	Highest level of education	Number of published articles on research topic
Participant 1	63	PhD	5+
Participant 2	47	PhD	10+
Participant 3	56	PhD	10+
Participant 4	55	PhD	5
Participant 5	48	PhD	5+
Participant 6	59	JD	5+
Participant 7	49	DBA	10+
Participant 8	40	PhD	5

Data Collection

Walden University's IRB approved my application to start data collection on January 25, 2023. The IRB application process started with the submission of Form A. One day after I submitted Form A, I received a letter from IRB asking me to submit the

completed Form C (The Ethics Self-Check) along with the required documents that

consisted of the CITI Certification, a sample of my social media post, the consent form,

and the interview protocol. Nine days after submitting the required documents, I received

an email with instructions to revise Form C, my interview protocol, and my consent form.

The next day, I made all the requested revisions and submitted the revised Form C

application and documents. In my case, the IRB reviewer asked that I format the consent

form to ensure that it met the requirements of the IRB. In addition, the IRB reviewer

asked that I make some corrections to the consent form and the interview protocol.

Immediately after the IRB approval, I started the data collection. I initially

identified 13 potential Metaverse experts who met the inclusion criteria to participate in

the study. At the end of the recruiting process, eight respondents agreed and participated

in the interview process. Five participants said they preferred to provide the answers to

the interview questions in a written format. I accommodated participant requests to fulfill

my commitment to meet their needs and concerns. One participant elected to record the

answers to the interview and send me a digital file to transcribe. Two participants agreed

to participate in the interview via Zoom.

The sample size of this study was within the range recommended by Halkias et al.

(2022), who noted that a sample size of between five and 10 participants could yield

pertinent themes and relevant applications. I collected the data until I reached data

saturation, "the point at which no new information, codes or themes are yielded from

data" (Braun & Clarke, 2021, p. 2). The review of the data showed that the data from

Participant 4, Participant 5, and Participant 8 were very similar. In addition, the data

saturation was confirmed with triangulation using archival data. The review and analysis of the archival data confirmed the themes that emerged from the interview data.

After the approval of the IRB application, I started the data collection using Google Scholar and LinkedIn and searched for Metaverse strategy and innovation management experts who met the inclusion criteria. Once the potential candidates were identified, I contacted them by email or messaged them through LinkedIn messaging, asking them to participate in the research study. For some potential candidates, it took longer to get a response. I continued the interactive process by sending follow-up emails and messages as necessary, until I obtained the participant's consent.

Once I obtained consent from the participants, I began scheduling interviews with each participant who agreed to interview via Zoom. To transcribe the interview data, I used the software, Temi. To store and manage the data, I used Microsoft Excel software. Microsoft Excel is an effective tool for storing data, documenting data from interviews, analyzing data with a thematical approach, and categorizing information through numbering (Tracy, 2019). In addition, using the Excel spreadsheet and the reflective journal notes allowed the creation of an audit trail of the data collection process by providing a step-by-step account of how the research decisions were made (Shenton, 2004).

The data were collected from eight Metaverse experts who met the inclusion criteria. I selected the dates and times of interviews based on the participants' preferences. The interviews went well without any technical difficulties. During the semistructured interviews, I tried to build a good report with the participants and ensured

they were comfortable throughout the interview. Each participant was provided with the

interview protocol to review as soon as they agreed to participate in the study. During the

interview, I made sure that the participants understood the goal of the interview and

asked for their permission to record the interviews. After each interview, I thanked each

participant and assured them of the confidentiality of the process and the fact that the

interview data would be kept in a secure place. In addition, I told each participant that,

within 72 hours, I would send them the transcripts of the interview to review and

validate.

To enhance the study's rigor, I started to write reflective journal notes as soon as I

obtained the approval of the IRB. I documented my subjectivities, positionality, personal

biases, assumptions, beliefs, and tacit theories in the reflective notes. The reflective

journal notes allowed me to develop thick descriptions of the study's contextual

situations, including the interactions with the participants, detailed observations about the

interview setting and the participants' behavior, the member check process, and personal

reflections after reading the interview data.

In the reflective journal notes, I tried to address my place on the continuum of

observer–participant, my thoughts on my various interactions with the participants, and

my reactions to ideas and thoughts expressed by the participants in their responses. All

Metaverse experts who participated expressed genuine interest in the research topic. The

shared interest in the topic allowed me to build a good report with the Metaverse experts

during the data collection process. As a result of these interactions with the experts, I

gained a broader understanding of the topic and collected rich data that helped me generate themes that helped answer the central research question of this study.

The data collection phase was not without its challenges. First, finding the participants who met the inclusion criteria was not an easy task. The Metaverse is a new phenomenon, and the inclusion criteria for the study were somewhat selective. Therefore, finding Metaverse experts who could provide their views and answer the research question was challenging. The use of network sampling was instrumental in finding the candidates.

Many experts did not respond to my initial recruitment communications. In many cases, I needed the assistance of my committee chair, who would intervene on my behalf. Thanks to her intervention, several participants agreed to participate. In addition, once I established contact with the candidates, coordinating a date for the interviews was not easy, given that almost all participants are recognized academics or Metaverse experts who were extremely busy. So, patience was truly a virtue during this challenging process. Some participants asked me to work with their administrative assistants to schedule the interview. Others canceled the interviews on numerous occasions. One participant canceled the interview three times.

I followed the interview protocol to the letter to ensure that the data collection generated consistent and reliable data across cases. I asked the five interview protocol questions to the eight Metaverse experts who agreed to describe their views on how innovation management experts, business leaders, and policymakers may collaborate on shaping a governance framework that will enable a viable, safe, and secure Metaverse.

The first question referred to the experts' views on the overall role of the Metaverse in shaping the future of business innovation. The second question focused on the experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful metaverse ecosystem. The third question investigated the experts' views on the critical success factors needed to shape a governance framework for a safe metaverse ecosystem. The fourth question inquired about the views of the Metaverse experts on the critical success factors needed to shape a governance framework for an inclusive metaverse ecosystem that does not shut out or harm vulnerable social groups. Finally, the fifth question asked the Metaverse experts to describe their thoughts on how business leaders and policymakers may overcome challenges in shaping a governance framework to regulate the Metaverse across industry sectors.

Initial Contact

To recruit the participants, I used Google Scholar, LinkedIn, and network sampling to contact the 13 subject matter experts who met the previously stated inclusion criteria. The participants were selected using Google Scholar and looking for Metaverse strategy and innovation management experts who met the inclusion criteria. In addition, to find additional participants, I explored LinkedIn, a professional social network. Once the potential candidates were identified, I contacted them by email or message, asking them to participate in the research study.

The recruitment process started immediately after the approval of the IRB and lasted until I reached data saturation. I started receiving positive responses to participate

in the study three days after the beginning of the recruitment process. For some potential candidates, it took longer to get a response. In those instances, I sent follow-up emails and messages as necessary. I also enlisted the support of my committee chair when necessary. After receiving each participant's consent, I proceeded to schedule the interviews.

In several instances, finding a suitable time to schedule the interviews was challenging since almost all the experts who agreed to participate had busy schedules. In some instances, we had to reschedule due to unforeseen circumstances. In one instance, I rescheduled the interview with one participant thrice in three weeks. All the participants expressed genuine interest in the research. Of the 13 potential candidates who consented to participate, eight participated and answered the interview protocol questions.

Interviews

Once I obtained consent from the participants, I contacted them to schedule the interview using Zoom or their preferred method. Five of the participants preferred to provide the answers to the interview questions in a written format. To ensure a positive participant experience, I accommodated the requests. Another participant elected to record the answers to the interview questions and send me the digital files to transcribe. Two participants agreed to participate in the interview via Zoom.

I prepared well and took several precautionary measures to ensure the interview went well. That included ensuring each participant had confirmed receipt of the invitation. In addition, a day before the interview, I sent each participant a reminder email. Then, I tested the Zoom application by conducting a mock interview to ensure

everything worked. I tested the recording feature and ensured the interview would be recorded correctly. Interviewing via Zoom was a credible and trustworthy substitute for a traditional face-to-face interview (Saarijärvi & Bratt, 2021). The data collection method was efficient, cost-effective, and reliable.

The average length of an interview was 28.5 minutes. The interviews were conducted through Zoom. I recorded the interviews using the recording features of the application and saved the recording files to my computer. The data were transcribed using a transcriber application called Temi. The transcription process was not difficult. I uploaded the digital file into the application. Within five to 10 minutes, the transcripts were ready to download. The transcripts were highly accurate. After I read the transcripts, I listened to the recording again and made minor corrections to ensure that the transcripts accurately reflected the participants' views.

The interviews went very well. For one interview, there was a 5-hour time zone difference. Despite that time difference, there were no technical difficulties. All interviews started with me establishing the report with the participants. That included thanking them for participating in the study and asking them if they were comfortable and if they understood the reasons for the interview. I started with the demographic questions and then proceeded to the five questions of the interview protocol. Throughout the interview, I checked each participant's body language and tone of voice. In one interview, one participant asked if he could disable the video feature of the interview. I acquiesced to the request. The participants seem to show a genuine interest in the purpose of the study. Overall, the interviews went very well. Thanks to interview questions and

the follow-up questions that I asked, I collected rich data that helped answer the central question of this multiple case study inquiry.

Reflective Journal Notes

I began the reflective journaling process immediately after I obtained approval from Walden University's IRB. That included documenting the data collection process and all my interactions throughout the process. After every interaction, I wrote journal notes to document my perception, subjectivities, and positionality. This recurring process helped me immerse myself in the process and, at the same time, allowed me to address my role as the instrument of the research.

As a qualitative researcher, it is essential that I am always mindful of my role as the instrument of the research (Ravitch & Carl, 2021). That is why I was mindful of my identity, positionality, biases, and subjectivities throughout the data collection and analysis phase. That meant, during the interviews, I was mindful of the context and paid attention to the context in which the participant operated. I paid attention to the body language, tone of voice and overall environment. When participants made a statement that I may disagree with, I refrained from reacting in a way that may convey my disagreements, whether verbally or non-verbally. Instead, I tried to listen attentively and asked follow-up questions when necessary while respecting the participants' time.

In addition, throughout the data collection, I engaged in researcher reflexivity, paid attention to my positionality, and ensured that I followed the three principles of the Belmont Report respect for persons, justice, and beneficence (Miracle, 2016). Even though participation in this study involved minimal risks, I vowed to protect the

participants from harm, including deception, and to protect their privacy and confidentiality. For example, when one of the participants informed me that they were walking while talking to me, I suggested we end the interview until they were in a more comfortable setting.

The reflective journaling continued throughout the data coding and analysis. I opted for manual coding using the ground up strategy and the cross-case synthesis technique to conduct the data analysis. When I developed the data analysis plan in Chapter 3, my goal was to use mainly descriptive coding in the first cycle coding. However, when I started the process, I realized that In Vivo coding was appropriate for the first coding cycle. Therefore, following Saldana's (2016) recommendation, I used several coding cycles, improving from one cycle to the next until I identified the emerging themes. I also wrote reflective journal notes on the cross-case synthesis process.

Transcript Review

Within 72 hours of each interview, I sent a copy of the transcript of the interview to each participant and asked them to review and validate that the data captured their true intended meanings (Kornbluh, 2015). This process is called member checks and represents a strategy to establish credibility for the study. One participant responded with a minor edit of one word in the interview transcript I sent him. Completing this process was instrumental in enhancing the trustworthiness of this multiple case study inquiry.

Prior to the interview, participants were provided with the interview protocol so they may prepare for the interview. All interviews strictly adhered to the interview

protocol to achieve consistency in the data collection phase. Participants confirmed the validity of the transcripts, and the collected data were stored on my computer in password-protected folders.

Data Analysis

The data analysis started with the ground up strategy. In the first coding cycle, I used a combination of descriptive and In Vivo coding (Saldaña, 2016). I organized the data according to similarity and regularity to develop categories (Saldaña, 2016). The analysis of the data collected from eight participants' in-depth views on the phenomenon, the archival data, and reflective journal notes helped generate themes and categories and furthered the understanding of the phenomenon (Yin, 2017; Merriam & Tisdell, 2015). During the process, I focused on identifying data segments responsive to the research question. In addition, I analyzed the entire data through the lenses of the three concepts that form the conceptual framework of this study:1) Rogers' (1995) concept of *diffusion of innovations,* 2) Ball's (2022) concept of *The Metaverse,* and 3) Fernandez & Hiu (2022) concept of *privacy, ethics, and governance in The Metaverse.*

I opted for manual coding instead of Computer Assisted Qualitative Data Analysis (CAQDAS) to perform the thematic analysis. The manual coding helped identify words and phrases for indexing and categorizing the data (Saldaña, 2016). The ground up strategy consisted of the inductive process of starting with the raw data and assigning various kinds of codes to the data (Yin, 2017). I started the data analysis process with the first cycle of coding. Saldaña (2016) recommended various coding methods, including elemental, structural, descriptive, In Vivo, process, initial, and

concept coding. I used In Vivo coding and descriptive coding to assign meaning to units of data from the description of the views of Metaverse experts on how business leaders and policymakers may collaborate to shape a governance framework for a viable, thriving and commercially successful Metaverse ecosystem.

I intended to use primarily descriptive coding when I developed the analytical plan. However, as I started the first coding cycle, I realized that In Vivo coding was also appropriate. According to Saldana, In Vivo coding suits studies that prioritize and honor the participant's voice. After the initial coding, I made several edits to improve on the first cycles codes that I came up with. I continued the process until I was somewhat satisfied with the codes. This process helped me immerse myself in the data and contributed to my understanding of the views of the Metaverse experts. After I was somewhat satisfied with the first cycle codes, I moved to the second cycle coding. Saldaña (2016) remarked that the "primary goal during second cycle coding is to develop a sense of categorical, thematical, and/or theoretical organization from your array of first cycle codes" (p.234). During the second coding cycle, I used mainly pattern coding, which is exploratory and inferential codes that group similarly coded data into categories and constructs (Saldaña, 2016). The second cycle coding helped identify categories that I could group into themes in the third cycle coding. The third level of coding involved making inferences, developing models, or generating theory.

The next phase of data analysis involved using the cross-case synthesis technique. The cross-case synthesis helped generate themes representing the convergence and divergence of participants' experiences within and between cases (Yin, 2017). Each of

the eight cases described the perspective of a Metaverse expert on how business leaders

and policymakers may collaborate to shape a governance framework for a viable,

sustainable, and commercially successful Metaverse ecosystem. I started by using within-

case analysis, in which each case was treated on its own, and then, I performed cross-case

analysis to find abstractions across cases (Merriam & Tisdell, 2015). The cross-case

synthesis involved discussing the similarities and differences among the different cases.

To manage and organize the transcribed interview data along with the archival

data and reflective journal notes, I used Microsoft Excel. Excel helped me to organize the

data by assigning transcribed data units to the specific research questions and

participants. The rigor of the data analysis process was enhanced by triangulating the

interview data with additional data sources, including archival data and relevant extant

literature (Yin, 2017). In addition, I created an audit trail of the data collection and

analysis process by providing a step-by-step account of how the research decisions were

made.

The data analysis process helped identify a total of four coding categories that

eventually gave rise to 12 themes that helped answer the research question. The coding

categories were: (a) the Metaverse shaping the future of business innovation, (b) business

leaders and policymakers collaborating on shaping a governance framework for the

Metaverse, (c) privacy and data security and protection, and (d) safe and inclusive

Metaverse for business innovation.

The conceptual framework of this study, which is based on three concepts, served

as the cornerstone of the analysis of the 12 themes that explain how the Metaverse could

shape business innovation in the future, the success factors of how business leaders and policymakers may collaborate to design a governance framework for a safe Metaverse ecosystem that does not exclude or harm vulnerable social groups: 1) Rogers's (1995) concept of *diffusion of innovations,* 2) Ball's (2022) concept of *The Metaverse* and 3) Fernandez & Hiu (2022) concept of *privacy, ethics, and governance in The Metaverse.*

The data analysis process consisted of immersing myself in the data so that I was able to distinguish the trees from the forest. In this case, the forest represents the initial list of codes, while the threes are the codes and categories generated during the data analysis process (Yin, 2017). The use of manual coding allowed me to identify codes, themes, and categories that helped me interpret the data.

To collect the data, I used an interview protocol and other data sources that support answering the central research question (Yin, 2017). Appropriate instrumentation that aligns with the study's purpose can contribute original data to the conceptual framework and extend theory (Halkias & Neubert, 2020). The interview protocol I used was grounded in this study's literature review and conceptual framework and was field-tested by a panel of three experts. Data triangulation performed using archival data and reflective journal notes (Yin, 2017; Lincoln and Guba, 1985), allowed me to conduct an in-depth investigation of the phenomenon in its context (Yin, 2017) by developing convergent evidence.

The archival data included government reports such as U.S. Congress records and reports and business reports on the Metaverse from organizations such as Deloitte, McKinsey & Company, Meta, and the World Economic Forum. The reflective journal

notes allowed me to develop thick descriptions of the study's contextual situations, including the interactions with the participants, detailed observations about the interview setting and the participants' behavior, the member check process, and personal reflections after reading interview data.

Hierarchical structuring was used for the data analysis process to organize the codes and themes based on how they are related.

- **Root node:** an innovation that changes the equilibrium of a present state
  - **Coding category:** The Metaverse shaping the future of business innovation.
    - **Themes:** 1) the Metaverse as disruptors across all industries, 2) human adoption and collaboration will drive business innovation in the Metaverse, 3) the challenge of interoperability across public and private platforms
  - **Coding category:** business leaders and policymakers collaborate on shaping a governance framework for the Metaverse.
    - **Themes:** 1) global network of stakeholders fostering a holistic and innovative approach to data governance, 2) governance framework must create value for the consumer, 3) centralized and decentralized options for governance
- **Root node:** developing an inclusive and safe Metaverse.
  - **Coding category:** privacy and data security and protection

- **Themes:** 1) advantages and challenges of user control over personal data, 2) collaborative policies to regulate human behavior in the Metaverse, 3) multi-stakeholder generated metaverse security and privacy policy

  o **Coding category:** safe and inclusive Metaverse for business innovation

  - **Themes:** 1) policies regulating user-generated content, 2) incorporate diversity, equity, and inclusion principles for organizations operating in the Metaverse, 3) accessibility to all consumers

To present the data of qualitative multiple case study research, Halkias et al. (2022) recommended using "figures, tables, and appendices to offer an exact visual representation of a multiple case study's data analysis process" (p.118). Yin (2017) recommended creating visual displays for examining the data of case studies. In this study, I presented the themes and categories in a table format to provide a visual representation of the review of Metaverse experts on how business leaders and policymakers may collaborate to shape a governance framework for a viable and commercially successful Metaverse ecosystem. The hierarchical coding shows that each theme is associated with a corresponding category. As no two cases are identical, differences among the cases regarding frequency of incidences made some cases stand out more than others. In the study result section of this chapter, I will present an additional visual graphic to illustrate the data from the cross-case synthesis analysis.

The below table displays the coding categories and themes broken down with each participant's quotations that align with the respective categories and themes.

Table 2

Coding and Theme Examples

Participant	Interview Excerpt	Coding Category	Theme
Participant 8	As it is still shaping and being discovered, Metaverse is a high-impact digital enabler that will enable and disrupt all industries. The convergence of Metaverse with other enabling technologies such as AI, Blockchain, Digital Twins, and IoT, among others, will significantly impact business models, revenue streams, investment strategies, competition metrics, and market dynamics.	*The Metaverse shaping the future of business innovation.*	1) the Metaverse as disruptors across all industries, 2) human adoption and collaboration will drive business innovation in the Metaverse, 3) the challenge of interoperability across public and private platforms
Participant 4	Stakeholders must work together to establish a self-regulatory body or industry association to oversee the development and use of the metaverse and ensure that it is being used ethically and responsibly. Additionally, they can collaborate on research and development to ensure that the technology is being used to its fullest potential for business innovation and growth.	*Business leaders and policymakers collaborate on shaping a governance framework for the Metaverse.*	1) Global network of stakeholders fostering a holistic and innovative approach to data governance, 2) governance framework must create value for the consumer, 3) centralized and decentralized options for governance.
Participant 1	To shape a governance framework for a safe metaverse ecosystem, several critical success factors must be taken into account: privacy and data protection: Users must have control over their personal data and how it is collected, used, and shared. Clear and transparent policies must be in place to protect user data and ensure compliance with relevant regulations".	*Privacy and data security and protection*	1) advantages and challenges of user control over personal data, 2) collaborative policies to regulate human behavior in the Metaverse, 3) multi-stakeholder generated metaverse security and privacy policy
Participant 3	"Any governance framework that purports to be inclusive and to not shut out vulnerable social groups must, itself, be inclusive of representatives of those groups! Again, collaboration is key. If one group creates policies without regard to needs of other (and sometime very different) groups, inequities are bound to occur."	*Safe and inclusive Metaverse for business innovation*	1) policies regulating user-generated content, 2) incorporate diversity, equity, and inclusion principles for organizations operating in the Metaverse, 3) accessibility to all consumers

Evidence of Trustworthiness

Credibility

Credibility in qualitative research refers to the extent to which the findings reported by the researcher reflect the reality of the lived experiences of the participants (Merriam and Tisdell, 2015). Credibility in qualitative research is enhanced using member checks, prolonged engagement, persistent observation, data collection triangulation, and researcher triangulation (Merriam and Tisdell, 2015; Yin, 2017; Lincoln and Guba, 1985).

Throughout the data collection and analysis phase of this study, my focus has been to ensure that the study's results reflected the participants' lived experiences (Ravitch &Carl, 2021, Kyngäs et al., 2020). As soon as the participants gave their consent to participate in the study, I worked with each of them to schedule an interview at a suitable time. Some participants asked if they could provide the answers to the interview in a written format. I acquiesced to those requests. One participant elected to record the answers to the interview questions and send me the digital files to transcribe. During the entire process, I made a conscious effort to build a report with each participant to better understand the phenomenon (Shenton, 2004). Those efforts paid dividends as some of the participants asked me to remain in contact with them after the interview and asked me to share the study results with them.

At the end of each interview, I conducted a member check by providing each participant with the interview transcripts to review. Member checks refer to the process in which the researcher verifies with the participants that the study's findings capture their

true intended meanings (Kornbluh, 2015). All participants confirmed the accuracy of the transcripts.

The sample size of eight participants is more than the minimum of five participants required for this type of study (Halkias et al., 2022; Merriam & Tisdell, 2015). I continued the data collection until I reached data saturation, "the point at which no new information, codes or themes are yielded from data" (Braun & Clarke, 2021, p.2). For example, the review of the interview data shows that the data from Participant 4, Participant 5, and Participant 8 were very similar. In addition, to enhance the creditability of the study, I established an audit trail of the entire data collection and analysis phase. Further, I performed data triangulation by using archival data and reflective journal notes (Yin, 2017; Lincoln & Guba, 1985).

Transferability

Transferability refers to the extent to which the study findings are generalizable (Nowell, 2017). Yin (2017) noted that the ability to seek generalization is influenced by the form of the initial research question chosen by the researcher. My goal during the data collection and analysis phase was to report the results to convey to the readers that the conduct of the study could be applied to different contexts if needed.

To ensure that the study met the transferability criterion, I described the sampling method including the inclusion criteria, the data collection, and the analysis methods in detail. In addition, I established an audit trail of the entire research process and shared the study results transparently in both the data analysis and data results sections of Chapter 4 (Kyngäs et al., 2020). Moreover, I relied on thick descriptions of the setting, events,

relationships, physical environment, people, and phenomenon in the reflective journal notes and the study's data analysis and interpretation phases (Rashid et al., 2021, p.6).

Dependability

Dependability refers to the extent to which a multiple case study's data collection, analysis, and theme development process are accurate and consistent (Halkias et al., 2022). According to Shenton (2004), Lincoln and Guba (1985) observed that there is an association between dependability and credibility and that achieving one invariably leads to realizing the other.

To achieve the study's dependability, I used data triangulation by basing the analysis on data from semistructured interviews, archival data, and reflective journal notes that were taken throughout the data collection and analysis phase. In addition, I provided a comprehensive audit that will allow any observer to retrace the steps of the data collection and analysis process (Shenton, 2004). That included providing an account of how I made decisions and choices about the methods and the theories used in the study, as well as the rationale behind them (Nowell et al., 2017).

Confirmability

Confirmability is a "measure of how well the collected data supports the study's findings "(Kyngäs et al., 2020, p.46). An important consideration with conformability is the researcher's willingness to address her/his biases and prejudices (Shenton, 2004). Nowell et al. (2017) remarked that Lincoln and Guba (1985) declared that confirmability is achieved when the other three standards of credibility, dependability, and transferability are realized.

To enhance the research's confirmability, I ensured that the data were linked to the research questions and the study's conceptual framework during the data presentation and analysis. I showed how the interview data answered each research question and how the archival data and the reflective journal notes confirmed that. In addition, I ensured that the data analysis stayed within the conceptual framework's confines. Moreover, I used triangulation strategies (Ravitch & Carl, 2021) and audit trails (Kyngäs et al., 2020). Further, I engaged in researcher reflexivity (Nowell, 2017; Kornbluh, 2015). To that effect, I discussed how my biases and prejudices may have influenced the research process and data analysis and ensured that the study's findings reflected the experiences and ideas of the participants and not my preconceived ideas or predisposition (Shenton, 2004).

Study Results

This study was framed by three key concepts that focused on the significance of developing empirical research on how business leaders and policymakers may collaborate on a governance framework to launch an inclusive and safe Metaverse strategy to support the future of business innovation (Bibri, 2022; Schmitt, 2022; Upadhyay & Khandelwal, 2022): 1) Rogers's (1995) concept of *diffusion of innovations,* 2) Ball's (2022) concept of *The Metaverse* and 3) Fernandez & Hiu (2022) concept of *privacy, ethics, and governance in The Metaverse.* The conceptual framework of this study aligns with the study's purpose of describing Metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a

governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation.

The sample size of this study consisted of eight Metaverse experts who participated in the interview process and provided their views on how business leaders and policymakers may collaborate to shape a governance framework for a successful, safe, and inclusive Metaverse ecosystem. The research question of this study was: How do metaverse strategy and innovation management experts describe how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation? This study's multiple case study design was the appropriate design to explore the phenomena and collect the data. I used the combination of descriptive, In Vivo, and pattern coding to generate codes that helped attach meaning to data units (Ravitch & Carl, 2021 Saldaña, 2016).

To analyze the data, I used manual coding to generate the themes. The analytical strategy combined ground up and cross-case synthesis techniques (Yin, 2017). The ground up method is an effective data analysis technique, which consists of identifying patterns in the data that can become the beginning of analytic building blocks that can be transformed into codes (Yin, 2017). In addition, the ground up strategy helps the researcher align emerging concepts and patterns to the study's research question (Yin, 2017). The ground up strategy is appropriate for descriptive coding in case study data analysis (Saldaña, 2016).

Another data analysis technique I used is cross-case synthesis. The cross-case synthesis helped generate themes representing the convergence and divergence of participants' experiences within and between cases (Yin, 2017). I started by using within-case analysis, in which each case was treated on its own, and then, I performed cross-case analysis to find abstractions across cases (Merriam & Tisdell, 2015). The cross-case synthesis involved discussing the similarities and differences among the different cases. As Yin (2017) remarked, "No two cases are identical" (p.198).

One aspect of the data analysis process is focusing on the relevant data for the study. The objective of collecting the data is to answer the research question. Therefore, as a researcher, it was important to focus on the research question and the conceptual framework as I went through the interactive data analysis process. That involved putting aside the irrelevant data and staying within the delimitations of the study (Ravitch and Carl, 2021).

To enhance the credibility of the study, I performed data triangulation (Guion et al., 2011; Halkias & Neubert, 2020). Yin (2017) noted that the opportunity to use data triangulation is one of the advantages of using the multiple case study design. That meant, in addition to the interview data collected through the semi-structured interview questions, I used archival data and reflective journal notes to analyze the data for this research study. The archival data included government reports such as US Congress records and reports, and business reports on the Metaverse from organizations such as Deloitte, McKinsey & Company, Meta, and the World Economic Forum. In addition, I

used data from reflective journals that I wrote throughout the data collection process and shared the audit trail of the research.

Merriam and Tisdell (2015) remarked that data analysis is the process of making sense of the data. The data analysis was conducted in two phases: The thematic analysis phase and the cross-case synthesis phase. The ground up strategy was used to help generate codes and themes to categorize and organize the data. The cross-case synthesis was used to identify patterns, generalize across cases (Merriam & Tisdell, 2015), and uncover literal and theoretical replications (Yin, 2017).

First Phase: Thematic Analysis of the Textual Data

The ground up method consisted of the inductive strategy of starting with the raw data and assigning various kinds of codes to the data (Yin, 2017). As recommended by (Saldaña, 2016), I started the data analysis process with the first cycle of coding. Saldaña (2016) remarked that qualitative researchers have various coding methods at their disposal in the first cycle coding, including elemental coding, structural coding, descriptive coding, In Vivo coding, process coding, initial coding, and concept coding. When I developed the initial data analytical plan in Chapter 3, I intended to use mostly descriptive coding. However, as I started the first cycle coding, I realized that In Vivo Coding was an appropriate and effective method. According to Saldaña (2016), In Vivo coding suits studies that prioritize and honor the participant's voice. I went through several rounds of the first cycle of coding. I refined the previous code in each round until I was satisfied with the codes.

When I was somewhat satisfied with the first cycle codes, I moved to the second cycle coding. Saldaña (2016) remarked that the "primary goal during second cycle coding is to develop a sense of categorical, thematical, and/or theoretical organization from your array of first cycle codes" (p.234). During the second cycle of coding, I used mainly pattern coding, which is exploratory and inferential codes that group similarly coded data into categories and constructs (Saldaña, 2016). The second cycle coding helped identify four categories that gave rise to 12 themes in the third cycle coding.

In the ensuing paragraphs, I present the study's results by introducing the 12 themes that emerged from the data analysis process, followed by pertinent verbatim quotes from participants to provide an in-depth understanding of the participant's perspectives.

The Metaverse as a Disruptor Across all Industries

This theme describes how the Metaverse experts interviewed in this study view the Metaverse as the platform that will enable and accelerate innovation and become a disruptor across all industries. Some of the most important features of the Metaverse, identified by the study participants, include that the fact that it will become the place for companies to test innovation, it has the potential to increase market share for organizations, and it will help monetize some innovative ideas. Metaverse experts predict the Metaverse will permanently transform our lives (Ball, 2022), affect human life and production (Fernandez & Hui, 2022), boost to an economy more extensive than the economy of the physical world in size (Ball, 2022), and blur the lines between the virtual and real between worlds (Dwivedi et al.,2022).

All eight participants describe the Metaverse as the new platform enabling and accelerating innovation. The participants discussed ways the Metaverse could become a place where companies can do virtual product demonstrations in markets without needing physical presence and testing new ideas. In addition, participants argued that the Metaverse would open new modes of human interaction, expand the existing market, usher in opportunities for "radical, innovative practices in existing fields", influence all society, and integrate all the different sectors of the economy.

The review of the archival data and the extant literature validated the sentiments of the Metaverse experts who participated in the study. In a report published in March 2023, Deloitte (2022) noted, "Deloitte believes the core value of the Metaverse is rooted in—improving the development efficiency of material civilization and expanding the development space of spiritual civilization" (p.6).

Both groups of Metaverse experts and study participants have clearly described Metaverse as a significant innovation. One of the key concepts of the conceptual framework of this study is Rogers's (1965) diffusion of innovation theory, which defines innovation as an idea, a practice, or an object that an individual or other adopter perceives as new, and diffusion as the "the process by which an innovation is communicated through certain channels over time among the members of a social system" (p.5). According to Rogers (1995), the four main elements of diffusion are innovation, communication channels, time, and the social system.

As we consider the diffusion of the Metaverse as innovation through the four elements, we start with the first one, innovation. Metaverse researchers and the

participants of this research study have all identified the Metaverse as an innovation worth adopting. Ball (2022) remarked that the Metaverse has the potential to drastically transform our lives by permanently changing how we work and think. Fernandez and Hui (2022) declared that the Metaverse would affect human societies, production, and life, and Dwivedi et al. (2022) remarked that the Metaverse would blur the lines between the physical and the virtual worlds. As was discussed earlier, the participants of this study expressed their views that the Metaverse will become the next platform for business innovation.

According to Rogers (1965), the second element of diffusion is communication channels. It is safe to say the communication channels for the Metaverse are amplified enough. If we consider the developers of virtual worlds and gaming platforms as the innovators (Ball, 2022; Terry & Keeney, 2022), then one of the early adopters of the Metaverse is undoubtedly Meta, the parent company of Facebook (Kraus et al., 2022). Given the prominence of Meta as the leading social media platform, many started to pay attention to the Metaverse when Facebook changed the name of its parent company from Facebook to Meta and started investing in Metaverse-related industries. Another milestone in communicating the importance of Metaverse as an innovation is the enthusiasm with which Roblox's IPO was received in 2021 by Wall Street and the venture capital community (Terry & Keeney, 2022).

The third element of diffusion is time. Deloitte (2022) identified four stages of the development of the Metaverse: The Infancy Stage (2016-2020), the Early Stage (2022-2030), the Mature Stage (2023-?), and the Final Stage(?). While it is difficult to predict

the future of the Metaverse, one can say that based on the amount of interest from the business community (Terry & Keeney, 2022) and international organizations (World Economic Forum, 2023), there seems to be a reasoned sense of optimism about the lasting powers of the Metaverse.

The final element of innovation is the social system. In the U.S. context, one can say that the early adopters of the Metaverse can be found in the tech industry with companies such as Meta and Microsoft (Terry & Keeney, 2022). This is understandable given these companies' familiarity with the technologies that power the Metaverse. Government and other sectors of the economy do not seem to be as enthusiastic about the Metaverse as the companies in the tech industry (De Zwart & Lindsay, 2010; Dwivedi et al., 2022). While the story of the diffusion of the Metaverse and its adoption by other sectors is still to be written, many believe that governments are lagging far behind in their understanding of the Metaverse as a phenomenon (De Zwart, 2010). One participant in this study, referring to some government officials' understanding of the Metaverse, remarked, "they have no clue."

> Participant 1:
>
> The Metaverse could also provide a new platform for businesses to collaborate, share resources, and co-create products and services. This could lead to increased efficiency and innovation in industries such as manufacturing and R&D could also use the Metaverse to create new revenue streams, such as by offering virtual goods or services, or by monetizing virtual real estate.
>
> Participant 5:

The Metaverse, once fully formed, will open new modes of human interaction,

communication, entertainment, work and in general being. Therefore, plenty of

opportunities will be present for new businesses and radical innovative practices

in existing fields and verticals.

Participant 8:

As it is still shaping and being discovered, Metaverse is a high-impact digital

enabler that will enable and disrupt all industries. The convergence of Metaverse

with other enabling technologies such as AI, Blockchain, Digital Twins, and IoT,

among others, will significantly impact business models, revenue streams,

investment strategies, competition metrics, and market dynamics.

Human Adoption and Collaboration Will Drive Business Innovation in the Metaverse

Rogers (1995) remarked that adopting an innovation does not happen

simultaneously in a given social system. Instead, it is a process during which some

members adopt the innovation quicker than others. Adopting the Metaverse as an

innovation will depend on the characteristics of the population. According to Rogers

(1995), research has shown that adopters have five categories in a given social system:

The first category is innovators, whose main characteristic is wanting to be the first to try

the innovation. We can point to gaming developers and virtual world platforms such as

Second Life in the Metaverse context. The second category is the early adopters. These

people are usually in leadership roles and are open to change opportunities.

In the Metaverse context, we can point to organizations such as Meta, Microsoft, and many other tech companies that have adopted the Metaverse and are investing heavily in Metaverse-related industries. The third category is the early majority, constituted by people who tend to adopt new ideas before the average person. In the context of the Metaverse, it is challenging to determine that population, given that the Metaverse is genuinely in its nascent or early stage. However, given that many experts believe that governments are behind in their understanding of the Metaverse (De Zwart, 2010), one can assume that governments may end up within this category or the following two categories. The fourth category is the late majority, which comprises people who are usually skeptical and will adopt an innovation after the majority has done so. The last category is the laggards, generally motivated by tradition and very conservative (Rogers, 1995).

This theme describes the importance of adopting the Metaverse and the stakeholders' collaboration in shaping a governance framework for the Metaverse. The importance of adoption and collaboration is crucial on two levels. First, stakeholders must collaborate to achieve the vision of the Metaverse. Second, the more stakeholders collaborate in developing the Metaverse, the more they will impact business innovation. Scholars and experts have emphasized the importance of collaboration and communication to realize the Metaverse successfully. For example, Dwivedi et al. (2022) remarked that researchers have commented that greater adoption of the Metaverse by conducting business in the virtual world could impact sustainability by reducing

emissions. Ball (2022) observed that the current versions of the Metaverse have been centered around collaboration, creativity, and self-expression.

All the research participants have emphasized the essential nature of collaboration to achieve an effective and viable governance framework for the Metaverse. One participant remarked that without collaboration, the current vision of the Metaverse would not be achieved. The participants discussed the necessity of collaboration between all stakeholders to establish clear guidelines for developing and implementing regulations that "balance the needs of industry, users, and society", for redefining the standards of compliance, for addressing the needs of the stakeholders, and for ensuring the Metaverse is interoperable across different platforms.

Several initiatives have been launched that stress the importance of collaboration for the future of Metaverse. The World Economic Forum (WEF), the multinational organization known for organizing the Annual Davos Summit, launched in its 2022 annual summit an initiative called *Defining and Building the Metaverse*. According to WEF, their initiative is "the world's foremost multi-stakeholder initiative to develop and share actionable strategies for creating and governing the Metaverse" (World Economic Forum, 2023). Meta, the parent company of Facebook and one of the early adopters of Metaverse, is also taking the lead in stressing the importance of collaboration between stakeholders. In a policy paper about the economic opportunities of the Metaverse, published in December 2022, Meta valued the economic contribution of the Metaverse at 3 trillion dollars by 2031. In the paper, Meta calls for a collaboration between the private sector, lawmakers, civil society, academia, and other stakeholders to help build the

Metaverse. To that effect, Meta launched an initiative called *Metaverse Standards Forums,* where organizations can collaborate to shape the standards of the global Metaverse (Bowles, 2022).

Participant 1:

Business leaders and policymakers can collaborate on shaping a governance framework for a commercially successful metaverse ecosystem by working together to establish clear guidelines and regulations for the use and development of the metaverse. This can include issues such as data privacy, intellectual property rights, and consumer protection.

Participant 4:

Stakeholders must work together to establish a self-regulatory body or industry association to oversee the development and use of the metaverse and ensure that it is being used ethically and responsibly. Additionally, they can collaborate on research and development to ensure that the technology is being used to its fullest potential for business innovation and growth.

Participant 7:

That is a very important question. So, I think this is actually the biggest challenge because when we talk about metaverse, we talk about AI, and we talk about exponential growth of technologies. So, these things have a massive effect and as well is going to exponential growth and take society to a completely different level. And most of society is not prepared for this level of disruption. So, I think it

is really key that business regulators and businesspeople and politicians work

together because if they don't work together, it is not going to happen.

The Challenge of Interoperability Across Public and Private Platforms

This theme describes the challenge of solving the interoperability problem to

achieve the vision of the Metaverse. Interoperability refers to the ability of all the systems

in a network to link up and exchange information (Hackl et al., 2022). The Metaverse

faces different types of interoperability challenges, including interoperability between

computer systems of different Metaverse platforms (Ball, 2022), interoperability between

the real world and the virtual world (Dwivedi et al., 2022), and interoperability between

the various currencies inside the different Metaverse platforms (Chen & Chen, 2022).

The participants in this study have recognized that interoperability is a serious

challenge that needs to be addressed to create a viable Metaverse. They discussed the

necessity to set "international industry initiatives in motion to create interoperable

protocols that will govern the Metaverse and ensure frictionless experiences across

different platforms." They indicated that the lack of collaboration would negatively

impact the prospects of achieving interoperability in the Metaverse.

The concern about interoperability in the Metaverse is high on the agenda of both

Meta and the World Economic Forum initiatives about the Metaverse. Meta remarked

that their vision of the Metaverse includes interoperability and portability of ownership

and identity (Bowles, 2022). The World Economic Forum noted that their Metaverse

initiative "seeks to guide the development of a safe, interoperable and economically

viable metaverse, by uniting stakeholders from various sectors, including government, academia, business, and civil society" (World Economic Forum, 2023).

Participant 5:

As with previous waves of system innovation in the internet, different governance models will compete, walled gardens versus open markets. Major players will seek to create dominating platform that will attract businesses and individual users. However, there are already international industry initiatives in motion to create interoperable protocols that will govern the Metaverse and ensure frictionless experiences across different platforms.

Participant 8:

Lack of collaboration will negatively impact transferability of knowledge, spillover of impact and innovation, and interoperability of infrastructures and solutions within and across ecosystems. Therefore, empowering multistakeholder engagement and governance is a crucial success factor for an inclusive metaverse ecosystem.

Participant 6:

We don't want other kinds of intellectual property theft or other things to happen. So, all those real-world regimes are necessary. The way that we distribute this opportunity is using tokens to allow your federated identity to become mobile across platforms. Of course, yes. By standardizing your, that's why I use the term "federated identity". Yes. Your identity is verified in one place, and then you can use that verified identity plus your avatar and perhaps a pseudonym count in other

settings. So, you don't have to be you, but you are traceable to you in those environments where you want to play.

Global Network of Stakeholders Fostering a Holistic and Innovative Approach to Data Governance

This theme refers to how stakeholders will work together to develop a governance framework that addresses the concerns about the security of the data generated by users in the Metaverse. Recent studies about the Metaverse have shown that data security and the safety of metaverse users are some of the main challenges that need to be resolved to protect Metaverse users (Fernandez and Hiu, 2022; Dwivedi et al., 2022). Fernandez and Hiu (2022) noted that the data collected from XR devices and HMDs of Metaverse users or the behavior and communication of the avatars in the virtual world contain sensitive information about users that need to be protected from cybercriminals.

The participants in this study discussed the necessity of designing a framework that ensures the safety of data generated by the users. The participants also discussed ways to educate users on the potential risks of participating in the Metaverse and provide them with ways to control their experience in the Metaverse to ensure the security of their personal information. All participants agreed that data security is a critical success factor in any governance framework.

One of the solutions to the data security problem was proposed by Dwivedi et al. (2022) in the form of a "security by design" architecture, which is an approach to cybersecurity that requires the automation of data security controls so that security concerns can be built into the IT infrastructure from its inception. For Fernandez and Hiu

(2022), solutions to the Metaverse's data security and privacy challenges include building

organizations that emulate the IRB model.

> Participant 1:
>
> Business leaders and policymakers can collaborate on shaping a governance
>
> framework for a commercially successful metaverse ecosystem by working
>
> together to establish clear guidelines and regulations for the use and development
>
> of the metaverse. This can include issues such as data privacy, intellectual
>
> property rights, and consumer protection.
>
> Participant 8:
>
> Consequently, regulating the Metaverse needs to be dynamically adapted to avoid
>
> stifling innovation while reassuring privacy, security, transparency, and
>
> multistakeholder engagement. Metaverse is a powerful cross-disciplinary enabler
>
> and there must be an ecosystemic and multidisciplinary approach on the design
>
> and implementation of its governance framework for increased efficiency,
>
> inclusion, resilience, security, and scalability of solutions.
>
> Participant 2:
>
> The metaverse will become a safe environment from a governance perspective, if
>
> a number of regulatory frameworks and regulatory approaches will be integrated
>
> across the different stakeholders. Safety has to be determined at first, but likely
>
> there would be safety, in terms of the inputs, safety in terms of the outputs, and
>
> safety in terms of the outcome.

Governance Framework Must Create Value for the Consumer

This theme refers to the fact that, to be viable, the Metaverse must provide some value proposition to all its stakeholders, including service providers, users, policy makers, and civil society. Economists and future studies scholars estimate that the value creation opportunity brought by the Metaverse will be approximately 5 trillion dollars by 2030 (McKinsey & Company, 2022; Schmitt, 2022). Some sectors that stand to prosper in the Metaverse include Real Estate, Gaming, Tourism, Sports Media and Entertainment, Creation, Healthcare, Education, and Tourism (Dwivedi et al.,2022; Iqbal & Campbell, 2022). The Metaverse will provide excellent opportunities for the creative industry. According to Fernandez and Hui (2022), the creation process is one of the most significant assets of the Metaverse. Blockchain technology allows users to create NFTs, trade them, and monetize their participation in the Metaverse (Ball, 2022; Dwivedi et al.,2022). The service providers in the Metaverse find considerable value in the Metaverse. They have been finding ways to monetize their platforms and establish control through End User License Agreements (EULA) and terms of service (ToS).

The participants in this study discussed the value of the Metaverse to all the stakeholders. They declared that the Metaverse is a great place for immersive experiences and entertainment for users. In addition, they highlighted the opportunity to monetize the Metaverse for both users and service providers. For example, one participant noted how the Metaverse could be a vehicle for companies to accelerate their presence in markets. Another participant explained how the Metaverse would be an incubator for testing ideas and a place to engage more people. Participants also considered how the Metaverse

would allow teams and individual contributors to collaborate more quickly and pilot ideas faster.

Participant 3:

The metaverse will likely play more of a facilitation/communication role in business innovation. It will allow teams and individual contributors to collaborate more quickly, pilot ideas faster, and test/experiment with much larger audiences in record-time. (Think of social media.) While AI and machine learning can help enable innovation—and facilitate its collaborative elements—humans are still the consumers of innovation, and this will always, in my view, require the human element/touch/input in order to be successful.

Participant 8:

Business leaders need to successfully highlight measurable impacts and commercial outputs of their Metaverse initiatives to provide relevant evidence on the challenges and opportunities based on which policymakers would need to provide support and capture and distribute value. Metaverse will be shaped around distributed governance, but with various scopes from enterprise-bound distribution to community-bound and beyond.

Participant 2:

And finally, the outcome is whether the value proposition of the metaverse will likely be encountered or found in what we originally attempted to. The question is, is the metaverse making the market better? Is it making marketing more

effective? Is it engaging consumers more. So it's so, like the research questions that tend to shape an effort to this nature need to be measured and assessed.

Centralized and Decentralized Options for Governance

This theme discusses the different types of governance frameworks proposed by the participants and where they lie in the Decentralized-Centralized governance framework continuum. One significant characteristic of the Metaverse in its current incarnation is its decentralized nature. Fernandez and Hiu (2022) noted that elements of the future governance framework for the global Metaverse could be found in some governance solutions currently in use in the gaming and social media platforms. These include codes and rules, blockchain, decentralized autonomous organizations (DAOs), modular governance, and online platforms used for social good. One governance solution proposed by Fernandez and Hui (2022) is the Modular Ethical Design (MED). Modular governance is a bottom-up approach to online platforms that involves developing portable tools that can be adapted to different platforms (Dwivedi et al., 2022). According to Fernandez and Hiu (2022), modular-based architecture will allow the adaptation to the different requirements of a global platform.

The research participants proposed several governance models ranging from fully decentralized to completely centralized. For example, participant 6 remarked that "the Metaverse will be shaped around distributed governance, but with various scopes from enterprise-bound distribution to community-bound and beyond. Participant 5 noted stated "I suggest studying the governance practices of early virtual world platforms of Metaverse 1.0 such as Second Life. A combination of central practices with peer

moderation capabilities may be an efficient solution". In addition, on the same topic of governance models, participant 5 made the following remark.

> As with previous waves of system innovation on the internet, different models of governance will compete, walled gardens versus open markets. Major players will seek to create a dominant platform that will attract businesses and individual users. However, there are already international industry initiatives in motion to create interoperable protocols that will govern the Metaverse and ensure frictionless experiences across different platforms (Participant 5).

Advantages and Challenges of User Control over Personal Data

This theme refers to the views of the Metaverse experts who participated in the study on the advantages or challenges of user control of their personal data. One of the significant opportunities presented by the Metaverse is its decentralized nature. Decentralization allows users to use the Metaverse without the risk of one organization, government, or entity controlling everything.

One manifestation of this decentralization is the emergence of DAOs such as Decentraland. Decentraland is one of the first DAOs based on blockchain technology. The metaverse is owned and run by its users. Users who hold either land or Decentraland's currency, MANA, are given a certain amount of voting power proportional to their assets (Kshetri & Schordan, 2022; Terry & Keeney, 2022); this is made possible by Blockchain technology that is powering Web 3.0 and allowing all users to access the shared data and protect and secure the privacy of the data (Purdy, 2022; Warin, 2022). With this technology, developers can build codes to decide what features

could be included, influence metaverse users' social behavior, and configure privacy bubbles to restrict access to users' profiles (Fernandez Hui, 2022).

While there are positive aspects to the decentralized nature of the governance structure of these technologies(cryptocurrencies, DAOs, NFTs), the lack of involvement of traditional institutions such as corporations, governments, or international organizations represent a severe impediment to the fulfillment of the promise of the Metaverse, because of the risk of harm to Metaverse users in terms of their privacy, their safety, and exposure to cyber criminality (Beioley, 2022; Hirsch, 2022; Statista, 2021). Fernandez and Hiu (2022) noted that the data collected from XR devices and HMDs of Metaverse users or the behavior and communication of the avatars in the virtual world contain sensitive information about users that need to be protected from cybercriminals. Another vulnerability of the decentralized nature of the DAOs is that it can make NFTs vulnerable to hacking which could put the entire model at risk (Dwivedi et al., 2022).

The participants of this study offered their views on the debate over Metaverse users' control over their data. Some participants favor having users control their data, while others privilege a central organization that will moderate the content generated in the Metaverse. One participant remarked that users "must have control over their data and how it is collected, used, and shared." The participant calls for clear and transparent policies to protect user data and ensure compliance with relevant regulations. Another participant preferred having service providers maintain control over the content and the process by which the content is being created, edited, shared, received, and archived.

Another important point made by one participant is the significance of the role that technology plays in helping make the content moderation process more efficient. Another point raised by one participant is the difficulty of striking a balance between ensuring the safety and security of the users and maintaining an open and decentralized governance framework.

Another critical topic raised by a participant is the role of AI in developing the Metaverse's rulemaking. Some participants discussed the positive aspects of AI and Machine Learning (ML) in helping make the Metaverse a more efficient and economically viable platform. Other participants warned against the harmful effects of the inherent biases imbedded in the algorithms that power AI and ML.

Participant 1:

To shape a governance framework for a safe metaverse ecosystem, several critical success factors must be taken into account privacy and data protection: Users must have control over their personal data and how it is collected, used, and shared. Clear and transparent policies must be in place to protect user data and ensure compliance with relevant regulations.

Participant 6:

So, I mean, so the notion that this can be primarily self-regulated is still consistent with the way most law operates, right. With the employment setting, we have a series of requirements for employers, and the vast amount of employment practice is self-regulation.

Participant 3:

This means policy must account for people—and people's attitudes, behaviors, biases, and good/bad intentions—as well as the processes by which those people create demand and supply for metaverse information. Technology will only enable/disable, accelerate, or slow, or approve or deny its contents as safe, reliable, consumable, and/or perishable.

Collaborative Policies to Regulate Human Behavior in the Metaverse

Ball (2021) identified eight core enablers of the Metaverse, and among them is the user's behaviors. This theme refers to how stakeholders can collaborate to design policies regulating users' behaviors in the Metaverse. Research on the governance of virtual worlds (the precursors of the Metaverse) has shown that existing laws were never intended to apply in the virtual worlds and that the Metaverse presents various complex legal issues that must be addressed to protect users' rights (De Zwart, 2009). Beioley (2022) noted that existing laws never considered users' behaviors, such as an avatar sexually harassing another avatar.

The different stakeholders in the development of the Metaverse have a common interest in enacting policies that regulate the behavior of the users of the Metaverse. The Metaverse users will benefit from regulations protecting them from harm (Fernandez & Hui, 2022). The service providers in the current version of the Metaverse are ill-equipped to deal with misbehaviors in their platforms effectively (Dwivedi et al., 2022; Smaili & De Rancourt-Raymond, 2022). The governments are incentivized to regulate misbehaviors in the Metaverse, including crimes, taxation, preventing money laundering,

and protecting content regulation (De Zwart, 2009; Dwivedi et al., 2022; Smaili & De Rancourt-Raymond, 2022).

All the study's participants reiterated the importance of a governance framework that will regulate users' permissible and not permissible behaviors to achieve a viable and successful Metaverse ecosystem. The participants suggested that a successful governance framework should account for "people's attitudes, behaviors, biases, as well as the process by which user-generated content is created, edited, shared, received, and archived." In addition, participants emphasized the importance of transparency and accountability, including holding content providers accountable for inappropriate behavior. Further, the participants insisted that the framework should spell out the "responsibility from top to bottom to solution providers and integrators, as well as bottom-up flow of information using AI, ML, and user input".

Participant 2:

The complexity comes from the fact that the Metaverse is a multi-stakeholder environment populated by multiple people. You have the users of digital avatars, and therefore we need to have governance in what is permissible and what is not inside the metaverse. The metaverse will not become a space where, and a digital amplification of our deviations in our behavior will become allowed. Putting there governance in the software, making sure that we don't have determinism to the point that we are having a large dependency on the autonomy of the algorithms, but one where we have human discretion beyond scrutiny.

Participant 1:

Clear and enforceable community standards and guidelines for behavior and

conduct within the metaverse should be established to address issues such as

harassment, discrimination, and exploitation.

Participant 4:

The metaverse ecosystem must be transparent and accountable to its users, with

clear and accessible mechanisms for reporting and resolving issues, and for

holding actors accountable for their actions within the metaverse.

Multi-Stakeholder Generated Metaverse Security and Privacy Policy

This theme refers to including a necessary policy that addresses the security and

privacy of Metaverse users in any governance framework for the Metaverse. Recent

studies about the Metaverse have shown that data security and the safety of Metaverse

users are some of the main challenges that need to be resolved to protect metaverse users

(Dwivedi et al., 2022; Fernandez and Hiu, 2022). These challenges include the data

security, software, hardware, and networks on which the platforms operate. To overcome

these challenges, Dwivedi et al. (2022) proposed a "security by design" architecture,

which is an approach to cybersecurity that require the automation of data security

controls so that security concerns can be built into the IT infrastructure from its inception.

For De Zwart and Lindsay (2010), all stakeholders should get together to develop a

viable governance model that will ensure its users' safety and security.

McKinsey & Company (2022) agrees with enacting policies that address privacy

and security in the Metaverse. In a report entitled *Value creation in the Metaverse,* the

consulting company urged the various stakeholders in the development of the Metaverse

to get together and define a "road map toward an ethical, safe, and inclusive metaverse experience" that will include guidelines around data privacy, security issues (p.6).

The study participants discussed the importance of security and privacy in any governance framework of the global Metaverse. One participant noted that business leaders and policymakers must collaborate to establish clear guidelines and regulations for data privacy, intellectual property rights, and consumer protection rights. Another participant recommended that service providers focus on strengthening the security and privacy rules and addressing them in the service agreement terms. Another participant noted that one of the critical success factors for any governance framework is incorporating privacy and data protection policies while acknowledging that technology will likely evolve much faster than the policies. Another participant proposed an adaptable framework that addresses privacy, security, and transparency issues without stifling innovation.

Participant 8:

Consequently, regulating the Metaverse needs to be dynamically adapted to avoid stifling innovation while reassuring privacy, security, transparency, and multistakeholder engagement. Metaverse is a powerful cross-disciplinary enabler and there must be an ecosystemic and multidisciplinary approach on the design and implementation of its governance framework for increased efficiency, inclusion, resilience, security, and scalability of solutions.

Participant 6:

But the gatekeeper must have a Federated Id. Whether that, you know, whether

it's Microsoft or Amazon or your university, they need to know that the work

you're doing is yours and not somebody else when you submit a grade that it's

your finance account when you're buying a product, that your work, when you're

at work. And so, if we start with the assumption that the platform publisher is

going to have absolute control over who's in the environment that leads to

consequences for misconduct, those consequences need to be part of the terms of

service and very explicit. And now you have an entirely different norm that will

arise.

Participant 1:

To shape a governance framework for a safe metaverse ecosystem, several critical

success factors must be taken into account privacy and data protection: Users

must have control over their personal data and how it is collected, used, and

shared. Clear and transparent policies must be in place to protect user data and

ensure compliance with relevant regulations.

Policies Regulating User-Generated Content

This theme refers to the views of the study's participants on the importance of

including policies that regulate user-generated content in the governance framework of

the global Metaverse. As the Metaverse continues to develop, it is essential to note that

existing laws were never intended to apply to users' behaviors in the virtual worlds that

represent the current manifestation of the Metaverse (Beioley, 2022). In the current

version of the regulation of the Metaverse, user-generated content is regulated through

the license agreements and the terms of service (ToS) that users sign for the right to join the virtual world or the gaming platform (De Zwart & Lindsay, 2010). When users have protested and challenged these rules in the courts, they have not been successful. According to De Zwart and Lindsay (2010), recent court decisions have shown that the courts have tended to side with the developers' right to enact restrictive license agreements.

If this trend persists, the ability and freedom of Metaverse users to create their own content and protect their rights to monetize their participation in the Metaverse could be jeopardized. To overcome these challenges, some Metaverse experts have recommend including in the governance framework of the global Metaverse, strong provisions that that will protect Metaverse users from unfair and abusive license agreements and/or terms of service (Chandra, 2022; De Zwart & Lindsay 2010). That includes policies that will regulate the content generated by the avatars (Dwivedi et al., 2022; Fernandez & Hui, 2022), the data collected from XR devices and HMDs (Fernandez & Hiu, 2022), the NFTs created by Metaverse users (Fernandez & Hiu, 2022; Guinchard, 2010; Rosenberg, 2022), and the inherent ambiguity in the relationship between the person and the avatar and (Dwivedi et al.,2022).

This study's participants echoed the recommendations for strict rules to regulate the user-generated content in the Metaverse. One participant remarked that policy makers and business leaders need to collaborate to design clear and transparent policies to protect user-generated data and ensure compliance with relevant existing regulations. Another participant suggested that the policies should include mechanisms to moderate and

remove offensive or undesirable content and recognize and deal with the potential for addiction, disorientation, and other adverse effects on users' mental and emotional health. In addition, participants called for policies that include accessible mechanisms for reporting and resolving issues, and for holding actors accountable for their actions within the Metaverse. One participant proposed that service providers control the content and moderation process. One suggested solution includes developing education tools and resources for users to understand the potential risks of being in the Metaverse and providing ways for users to control their experiences in the Metaverse.

One governance solution proposed by Fernandez and Hui (2022) is the Modular Ethical Design (MED). The MED will have several decision modules, including one dedicated to managing behavior, a privacy module responsible for the avatars' privacy, and a privacy module dedicated to sensory data. Some regulators have started to take the issue of the protection of user-generated data very seriously. According to Fernandez and Rui (2022), the state of California and the European Union have recently enacted respectively the California Consumer Privacy Act (CCPA) and the General Data Regulation Protection (GDPR) to protect the rights of individuals in monitoring environments.

Participant 3:

Governance in the metaverse will largely come down to content and process—or the usual "people, processes, and technology" triumvirate. Leaders control the content— so the "best truths" are available—and the process by which such content is created, edited, shared, received, and archived. This means policy must account for people—

and people's attitudes, behaviors, biases, and good/bad intentions—as well as the processes by which those people create demand and supply for metaverse information.

Participant 1:

Another is user-generated content moderation: The metaverse ecosystem must have robust mechanisms in place to moderate and remove offensive or undesirable content, as well as to deal with harassment and abuse.

Participant 8:

A successful Metaverse governance framework will reinforce transparency, accountability, and responsibility from top to bottom to solution providers and integrators, as well as bottom-up flow of information using AI, ML, and user input.

Incorporate Diversity, Equity, and Inclusion Principles for Organizations Operating in the Metaverse

This theme refers to the views of the Metaverse experts on the necessity to ensure that the Metaverse will be a place that will promote diversity, equity, and inclusion. One of the promising characteristics of the Metaverse in its current incarnation is its decentralized nature. The decentralized nature of the Metaverse allows the platforms to be participative and inclusive. Fernandez and Hui (2022) remarked that the Metaverse has the potential to eliminate social ills such as racism and inequality and promote diversity by removing the limitations of the physical world, allowing users to design their avatars and express themselves as they see themselves and offering limitless possibilities to all users. De Zwart & Lindsay (2010) noted that the value of the current Metaverse

ecosystem lies in its diversity and that diversity should be respected and considered as all stakeholders consider developing a governance framework.

However, despite the hopeful vision of the Metaverse presented by some Metaverse experts, the actual reality of virtual worlds and gaming platforms is one in which users report exposure to offensive and undesirable behaviors, harassment of users, unregulated gambling, sexualization of avatar interactions, and personal data exploitation (Buck & McDonnell, 2022; Hoover, 2022; Smaili & de Rancourt-Raymond, 2022). That is why many researchers and experts believe that the governance framework of the Metaverse should favor diversity and ensure it is inclusive of marginalized groups. In a study about designing the Metaverse, focused on inclusion, diversity, equity, accessibility, and the safety of users, Zallio and Clarkson (2022) interviewed 12 experts from different countries whose expertise range from XR technologies, digital twins, NFT, and blockchain. The results indicated the need for all stakeholders to collaborate to create good practices for designing an inclusive, accessible, safe Metaverse that guarantees equity and diversity.

All the participants in this research study expressed the importance of having a Metaverse that promotes inclusiveness and diversity. One participant remarked that business leaders must engage with policy initiatives and develop more impactful, inclusive frameworks and strategies. In addition, efforts should be made to ensure that the Metaverse is inclusive and accessible to a diverse range of users, with particular attention paid to vulnerable and marginalized groups. Another participant stated that any governance framework that "purports to be inclusive and not to shut out vulnerable social

groups must be inclusive of representatives of those groups." Another participant proposed that inclusion must be by design, which calls for collaboration between all stakeholders from the beginning stages of the development process to the implementation stages.

McKinsey and Company (2022) declared that diversity, equity, and fairness are areas where the developers of the Metaverse need guidance. The lack of diversity among the builders of the Metaverse could lead to a lack of diversity in the experiences being created in the Metaverse. For example, "today, fewer than a third of creators of interactive experiences are women" (McKinsey & Company, 2022, p.52).

Participant 8:

Inclusion must be by design, which means that we need to maximize collaboration from across the public and private sectors and include vulnerable social groups from the initial stages of conception and the design of the solution to development and implementation. This is a crucial step to increase the efficiency and inclusion of solutions in general, and specifically for Metaverse due to the level of interconnectedness that it can bring across disciplines, markets, and geographies.

Participant 2:

So, vulnerable groups need to be integrated in the design of the metaverse. We can not necessarily use personas of a certain kind of prototypical profile that are likely coming from a traditional standard deviation in the representation of the sample. We need to have what we consider in, in statistics, outliers or anomalies, equally

integrated because even if statistically not insignificant in a given population, they equally matter and they need to be represented.

Participant 3:

Any governance framework that purports to be inclusive and to not shut out vulnerable social groups must, itself, be inclusive of representatives of those groups! Again, collaboration is key. If one group creates policies without regard to the needs of other (and sometime very different) groups, inequities are bound to occur. However, this goal is a lofty one—there are many "vulnerable" groups; thus, finding compromise will be difficult…with difficult choices to make.

Accessibility to All Consumers

This theme refers to participants' views that the Metaverse must be accessible to all users and that efforts should be made, during its development, to remove barriers of any kind to access the Metaverse. Ensuring the accessibility of the Metaverse to its users is a significant challenge that needs to be overcome. For example, users of the Metaverse will not be able to access it if the network is unavailable, if the network is the victim of distributed denial of Service (DDoS), or if the cost of the XR technologies is too prohibitive (Dwivedi et al., 2022). Ball (2022) noted that computational limitations will shape the experiences in the Metaverse. Moreover, those limitations will determine who will access the Metaverse, when, and where they can access it.

An additional access-related issue concerns equity in the Metaverse. Web 2.0 has brought about the ethical issue of the digital divide characterized by some members of society being unable to access the internet because of their economic conditions and the

lack of adequate infrastructure in their areas (Floridi, 2022). Some feared that Metaverse could exacerbate the digital divide (Garon, 2022). In a study about designing the Metaverse, focused on inclusion, diversity, equity, accessibility, and the safety of users, Zallio and Clarkson (2022) interviewed 12 Metaverse. The results indicated the need for all stakeholders to collaborate to create good practices for designing an inclusive, accessible, safe metaverse that guarantees equity and diversity.

The participants expressed their concerns about access to the Metaverse by all users and the risk of it being a place of exclusiveness and exclusion of marginalized groups. One participant noted that accessible solutions that ensure that the Metaverse is inclusive and accessible to a "diverse range of users, with particular attention paid to vulnerable and marginalized groups "and that increase the engagement of business leaders and policymakers, are crucial for the success of the Metaverse. Several participants raised their concerns about the digital divide in the Web.2.0 world and the necessity of doing everything to avoid repeating the ills of the digital divide in the Metaverse realm.

One participant commented on the cost of the immersive technologies and said that everything should be done to ensure that the Metaverse does not end up with two versions: one for those who can afford it and another for those who cannot afford it. Another participant put it in terms of a Metaverse ecosystem with "first-class" users and "second-class" users. Another aspect of the digital divide that was discussed was the geographical consideration. Two examples of the digital divide that were brought up are urban vs. rural and developed countries vs. developing countries.

Other aspects of the discussion about accessibility in the Metaverse are technological. According to McKinsey & Company (2022), one consideration about the access to the Metaverse is related to the network infrastructure when there is "high latency" that causes video and audio to be slow and "low bandwidth" when data cannot be transmitted quickly enough. Another consideration is related to the devices being used to access the metaverse. Currently, the Metaverse is being accessed mainly through flat screens: televisions, computers (PCs and laptops), and smartphones. However, as the technologies improve in a few years, there is an expectation that there will be a transition to AR/VR and XR devices to access the Metaverse. (McKinsey & Company, 2022).

Participant 6:

There are a number of steps that are necessary depending on, you know, which population we are identifying. So first and foremost, we may, we must require that these are considered essential services. And as essential services, adherence to accessibility rules must be enforced, right? We cannot create a virtual world that excludes people who have limited sight, limited hearing, and the like, because otherwise we're creating a world of haves and have-nots. And that takes work and design, but it's essential.

Participant 2:

The other success factor is the user friendliness for more than just one typology of client. Some of these metaverse interfaces today, they either have implicit barriers of entry or they are not accessible, both in terms of infrastructure, but also cost the device. Vulnerable groups. They become less vulnerable when we include them.

So, it's important that the, I would say, commercial offers for people to join the metaverse needs to take into account the price, not as a form of discrimination, but as an entry point for most people.

Participant 8:

Accessible solutions to increase the engagement of business leaders and policymakers are crucial. There is plenty of innovation opportunities to increase the accessibility and adaptability of solutions to drive multistakeholder engagement toward shaping an empowering, inclusive, and efficient governance framework to regulate the Metaverse across sectors.

## Second Phase: Cross-Case Synthesis and Analysis

The cross-case synthesis helped generate themes representing the convergence and divergence of participants' experiences within and between cases (Yin, 2017). I started with within-case analysis, in which each unit of analysis (each case) was treated separately, and I analyzed the data to learn about the context. The within-case investigations included an analysis of "how" and "why" each individual participant engaged in the process. Then, I performed the cross-case analysis to identify patterns and generalize across cases (Merriam & Tisdell, 2015). The cross-case synthesis involved discussing the similarities and differences among the different cases and uncovering literal and theoretical replications.

Another essential aspect of the cross-case synthesis is the discussion of the differences between cases. As Yin (2017) remarked, "No two cases are identical" (p 198). I discussed how the cases differed along several dimensions in the data analysis. Below is

a figure that displays the convergent and divergent data of the occurrences of the different themes.

Figure 1

Cross-Case Synthesis Results
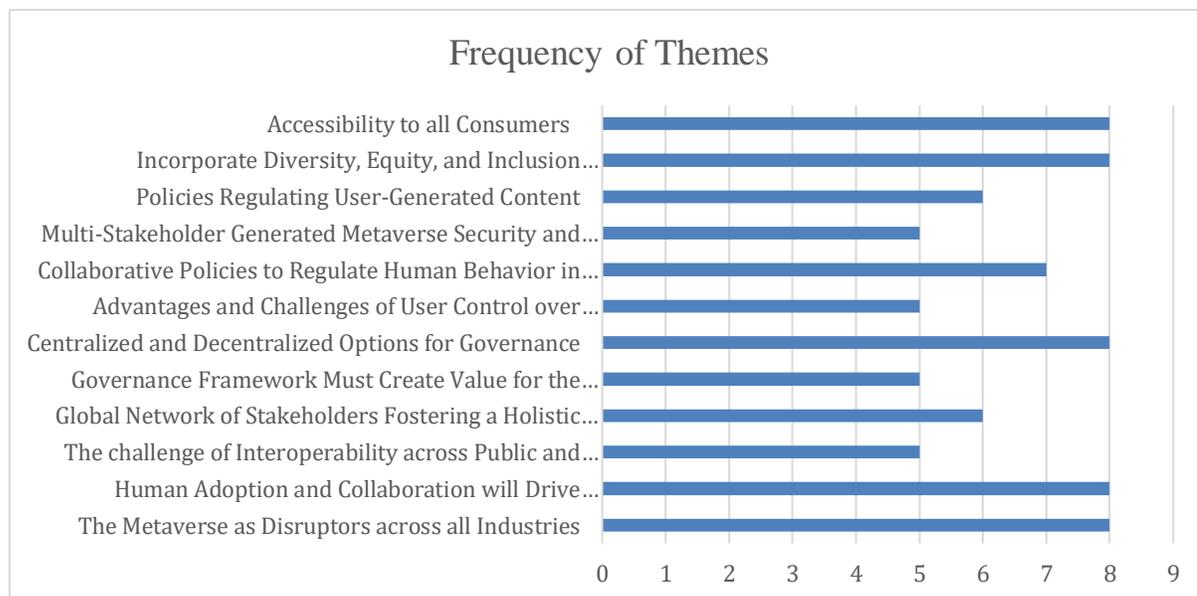
Expert interviews are considered a standard research method in the qualitative paradigm (Bogner et al., 2018; Littig & Pöchhacker, 2014). Experts possess the specific knowledge to help meet the study's purpose. In exploratory studies, expert interviews are more efficient in generating the desired data (Bogner et al., 2018). Even though the interviews were developed as semistructured, the nature of exploratory expert interviews allowed for the generation of rich data from the experts' knowledge of an under-researched field (see Littig & Pöchhacker, 2014). Interviewing subject matter experts allowed me to collect in-depth data that reached saturation with the eight participants (see Merriam & Tisdell, 2015). Given the open nature of qualitative expert interviews, I

answered my research question by collecting data from experts' breadth of knowledge and experience in newly emerging research fields (Döringer, 2021; Littig & Pöchhacker, 2014).

Triangulation

One of the advantages of the multiple case study design is the opportunity to use different sources of evidence and data triangulation (Yin, 2017). Data triangulation added quality to the data. By developing convergent evidence, data triangulation allowed me to conduct an in-depth investigation of a phenomenon in its context (Yin, 2017) and helped me enhance the validity of the research (Ravitch and Carl, 2021). The data triangulation process involved consulting different data sources as I progressed through the data collection and analysis phase. For example, I created a folder of archival data and organized the information based on which interview question it was related to. As I read the interview data, I tried to make connections between interview data excerpts and specific archival data items. This helped me analyze the data from different angles and points of view.

Some of the archival data I used included data from US government reports, congressional reports, and multinational organizations' reports such as McKinsey & Company, Deloitte, Pew Research, World Economic Forum, Meta, Swiss Government report, and Singapore Government report. In addition, I triangulated with data from reflective journal notes that I wrote throughout the data collection and analysis process. In addition, throughout the data analysis phase, I provided a detailed audit trail of the

investigation process so that an independent observer could trace the course of the study by following the steps and procedures I took during this research study (Shenton, 2004).

After the interviews, I conducted a member check by providing each participant with a copy of the transcripts and asked them to review and validate that the transcribed data accurately reflected their views. According to Kornbluth (2015), Lincoln and Guba (1985) considered member checks the most critical strategy to measure the trustworthiness of qualitative studies. The member check process helped enhance the credibility of the study.

Summary

In Chapter 4, I presented the results and the analysis of the results of this multiple case study. The analysis included thematic analysis followed by a cross-case synthesis to answer the study's central question: How do Metaverse strategy and innovation management experts describe how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe Metaverse ecosystem to drive future business innovation? This multiple case study reported the views of subject matter expert participants that generated rich data. The data analysis revealed 12 themes that helped answer the research question. The data analysis plan consisted of a thematic analysis and a cross-case synthesis (Yin, 2017).

The ground up strategy of coding the data helped generate coding categories representing the convergence and divergence of the participants' experiences within and across cases (Yin, 2017). Four coding categories emanated from the rich data collected from the participants. The four coding categories eventually created 12 emerging themes

(Saldaña, 2016). The four conceptual codes that emerged from the initial coding cycles were: (a) the Metaverse shaping the future of business innovation, (b) business leaders and policymakers collaborate on shaping a governance framework for the Metaverse, (c) privacy and data security and protection, (d) safe and inclusive Metaverse for business innovation.

The 12 themes that emerged from the analysis of the data include (a) the metaverse as disruptors across all industries, (b) human adoption and collaboration as drivers of future business innovation in the Metaverse, (c) the challenge of interoperability across public and private platforms, (d) global network of stakeholders that fosters a holistic and innovative approach to data governance, (e) governance framework that creates value for the consumer, (f) centralized and decentralized options for governance, (g), advantages and challenges of user control over personal data, (h) collaborative policies as regulators of human behavior in the Metaverse, (i) multi-stakeholder generated Metaverse security and privacy policy, (j) policies that regulate user-generated content, (k) incorporation of diversity, equity, and inclusion principles for organizations operating in the Metaverse, (l) accessibility to all consumers.

One of the advantages of the multiple case study design is the use of multiple sources of evidence or triangulation**.** To enhance the study's trustworthiness, I performed data triangulation by analyzing archival data from government reports, congressional reports global organizational reports such as McKinsey & Company, Deloitte, Pew Research, World Economic Forum, Meta, Swiss Government report, and Singapore Government report.

The results of the data were analyzed through the perspectives of the three main concepts of this study's conceptual framework, which is centered on the views of Metaverse experts on how business leaders and policymakers may collaborate to shape a governance framework for a viable, safe and commercially successful Metaverse ecosystem: (a) Rogers's (1995) concept of *diffusion of innovations*, (b) Ball's concept of *The Metaverse*, and (c) Fernandez and Hiu (2022) concept of *privacy, ethics, and governance in The Metaverse*.

The purpose of this qualitative, multiple case study was to describe metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation. This study is significant to theory extension by contributing original, qualitative data to address a significant gap in the literature on empirical research on how business leaders and policymakers may collaborate on a governance framework to launch an inclusive and safe Metaverse strategy to support the future of business innovation (see Bibri, 2022; Schmitt, 2022).

In Chapter 5, I will present the interpretation of the findings of this study as they relate to the extant literature. In addition, I will address the limitations of the study. Then, I will discuss the implications of this research for practice, theory, and social change. The chapter ends with recommendations and conclusions sections.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative study was to describe Metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation. To achieve the purpose of the study and address the significant gap in the literature on empirical research on the governance structure of the Metaverse (Bibri, 2022; Schmitt, 2022), and align with the qualitative paradigm, a multiple case design (Yin, 2017) was used to collect data from a purposeful sample of Metaverse experts.

To answer the study's central research question and purpose, I analyzed the qualitative data collected from interview data, archival data, and reflective journal notes (Yin, 2017). In addition, I used an interview protocol that was field tested and validated by a panel of three experts to collect data that reflected the views of innovation management experts on how business leaders and policymakers may collaborate to shape a governance structure for the Metaverse. The interviews allowed the experts to express their views and expert knowledge on the subject, allowing them to identify convergent and divergent evidence (Halkias, 2022; Yin, 2017). To gain a more in-depth understanding of the Metaverse phenomenon, I developed a conceptual framework based on three concepts: (a) Rogers's (1995) concept of diffusion of innovations, (b) Ball's (2022) concept of the Metaverse, and (c) Fernandez and Hiu's (2022) concept of privacy, ethics, and governance in the Metaverse. The exploratory multiple case study design was appropriate for this study (Yin, 2017). Using the multiple case study design to analyze

data from eight relevant cases allowed for theory extension (Eisenhardt & Graebner, 2007; Halkias & Neubert, 2020; Stake, 2005).

The data analysis, which consisted of the combination of thematic analysis and cross-case synthesis of the interview data from eight Metaverse experts, revealed the following emerging 12 themes: (a) the metaverse as disruptors across all industries, (b) human adoption and collaboration as drivers of future business innovation in the Metaverse, (c) the challenge of interoperability across public and private platforms, (d) global network of stakeholders that fosters a holistic and innovative approach to data governance, (e) governance framework that creates value for the consumer, (f) centralized and decentralized options for governance, (g) advantages and challenges of user control over personal data, (h) collaborative policies as regulators of human behavior in the Metaverse, (i) multi-stakeholder generated Metaverse security and privacy policy, (j) policies that regulate user-generated content, (k) incorporation diversity, equity, and inclusion principles for organizations operating in the Metaverse, and (l) accessibility to all consumers.

Interpretation of Findings

The systematic analysis of the data collected in multiple case study designs can help expand extant theories, contribute original qualitative data, confirm and extend existing knowledge, and lead to theory extension (Halkias et al., 2022). The findings of this multiple case study extended current knowledge in the discipline of Metaverse research. I interpreted the data of each case through the lenses of the study's conceptual framework and the extant theoretical and professional practice literature.

In this section, I will present the findings of the study by reviewing the four coding categories that emerged from the data analysis process: (a) the Metaverse shaping the future of business innovation, (b) business leaders and policymakers collaborating on shaping a governance framework for the Metaverse, (c) privacy and data security and protection, and (d) safe and inclusive Metaverse for business innovation. In addition, I will show how the emerging themes and categories relate to the fundamental concepts of the conceptual framework and the extant literature discussed in Chapter 2. Further, I will demonstrate how the evidence from the data collected from the eight participants of this multiple case study either confirms, disproves, or extends knowledge in this emerging area of inquiry.

The Metaverse Shaping the Future of Business Innovation

The Metaverse is seen by many as the next platform for business innovation (Ball, 2022; Dwivedi et al., 2022; Fernandez & Hui, 2022). Researchers and technology experts estimate that the Metaverse economy will be valued between five to 10 trillion dollars by 2030 (Ball, 2022; McKinsey & Company, 2022). However, several challenges remain, including shaping a governance framework to achieve a safe, commercially successful Metaverse (Bibri, 2022; Fernandez & Hiu, 2022; Schmitt, 2022). This study confirms the crucial role of the Metaverse in shaping the future of business innovation.

Study participants confirm that the Metaverse will be a place that will accelerate business innovation and extend existing markets for companies. Participants confirmed that the Metaverse would be the platform causing disruptions across many industries and sectors, including digital marketing, the fashion industry, healthcare delivery,

entertainment, tourism, manufacturing, retail, creation, and education. The study results align with Kshetri's (2023) conclusions that the Metaverse's value lies in its transformative effect on how businesses will function. The study extends knowledge based on the work of Rogers (1965) as well as the work of Ball (2022), Buhalis et al. (2023), Dwivedi et al. (2022), and Gueorguiev and Georgieva (2022) on how the Metaverse is the new technology platform that will drive business innovation in the future.

Business Leaders and Policymakers Collaborate on Shaping a Governance Framework for the Metaverse

According to Ball (2022), the vision of the Metaverse of a worldwide combination of a "richly detailed virtual world with a nearly infinite number of unique businesses, places to visit, activities to do, things to buy, and people to meet [where] nearly everything and anything done by any user, at any time, can persist forever" is not far from reality today (p. 46). However, bringing that vision to reality will require overcoming many technological and sociological challenges. Metaverse researchers and experts have identified the collaboration among the stakeholders involved in building the Metaverse as one of the most critical challenges that must be overcome (Dwivedi et al., 2022; World Economic Forum, 2023). My study results confirm the importance of collaboration between policymakers and business leaders to shape the governance framework for a safe, viable, and fully functioning Metaverse ecosystem.

Study participants confirmed that for the Metaverse to become a reality, business leaders and policymakers must collaborate to create an adaptable governance framework

that will function across jurisdictions. In addition, participants remarked that without collaboration among stakeholders, the vision of the Metaverse would not be achieved. The study aligns with the findings of De Zwart (2009), who called for collaboration among the different stakeholders to achieve a safe, viable Metaverse that provides value to all stakeholders. The study extends knowledge based on the work of Dwivedi et al. (2022), who called for more collaboration involving customers, suppliers, and other stakeholders to improve the products and services concepts, design, production process, and delivery in the Metaverse.

Privacy and Data Security and Protection

One of the critical success factors in the development of the Metaverse is the ability to protect the privacy and security of the data generated in the Metaverse. Recent studies about the Metaverse have identified data security and the safety of metaverse users as some of the main challenges that need to be resolved to protect metaverse users (Chen et al., 2022; Dwivedi et al., 2022). This study confirms the importance of privacy and data security in shaping a governance framework for a viable Metaverse ecosystem.

Study participants confirmed that Metaverse stakeholders must collaborate to establish clear guidelines and regulations for data security and privacy, intellectual property rights, and consumer protection rights. The study aligns with Di Pietro and Cresci's (2021) conclusions regarding the critical nature of addressing the systemic threats to security and privacy associated with Metaverse technologies. The study extends knowledge based on the work of Anshari et al. (2022) and Chen et al. (2022) on the importance of using Metaverse data ethically, and the necessity of striking the right

balance, in government interventions, between regulating the user-generated data and not stifling innovation or negatively affecting user experience.

Safe and Inclusive Metaverse for Business Innovation

For the Metaverse to become a truly global platform, it must be an inclusive and diverse environment. Researchers and technology experts have raised the importance of addressing inclusiveness, especially from the inception phase of the Metaverse (Fernandez & Hui, 2022). The study participants expressed the importance of having a Metaverse that promotes inclusiveness and diversity and prioritizes the rights of vulnerable and marginalized groups.

Study participants confirmed that the Metaverse must be a place that promotes inclusiveness and diversity. Participants confirmed that the governance framework of the Metaverse must account for inclusiveness and diversity in the design from the beginning stages of the development process to the implementation stages. The study results align with Fernandez and Hui's (2022) postulation that the Metaverse should be a diverse and accessible place where all people are welcome. The study extends knowledge based on the work of Zallio and Clarkson (2022), who indicated the need for all stakeholders to collaborate to create good practices for designing an inclusive, accessible, safe metaverse that guarantees equity and diversity.

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Limitations of the Study

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As a researcher, I must acknowledge the limitations of my study, consisting of the weaknesses that could affect the outcome and conclusions of the research study (Ross & Zaidi, 2019). One of this study's limitations was due to the choice of the qualitative

approach to answer the research question. One consequence of using the qualitative method is the difficulty of extending the findings to a broader population with the same degree of certainty as quantitative approaches (Lincoln & Guba, 1985; Yin, 2017).

I selected multiple case study as a research design to support the in-depth exploration of participants' perceptions of a phenomenon within its natural context (Tracy, 2019). A detailed audit trail was provided to drive the trustworthiness of this qualitative study's results. In addition, during the data collection and analysis phase, I performed data triangulation of the interview responses, historical literature, and reflective journal notes (see Guion et al., 2011). Additionally, a comprehensive literature review was included in this study to support the research rationale and ensure the data collected was dependable to address the study's purpose.

Another study limitation was related to the data collection and analysis phases. Semistructured interviews of study participants and archival documents were the primary sources of data collection in this multiple case study (Halkias et al., 2022). The limitations during the data analysis and interpretation phases were related to coding the data, interpreting the data, and being aware of my role and biases as a researcher as well as the biases of the research participants (Ravitch & Carl, 2021; Ross & Zaidi, 2019). During the interview, I was mindful of how I could have influenced the study because of my biases and preconceived ideas about the phenomenon.

The third limitation of this study was related to the scarcity of research on the Metaverse. The Metaverse is a relatively new phenomenon (Dwivedi et al., 2022), hence the scarcity of research on the Metaverse, and more specifically, on the governance

framework of the Metaverse. A bibliometric review of the term "metaverse" based on the Scopus database by Schmitt (2022) revealed that interest in the Metaverse surged dramatically in 2022. As a researcher, I focused on selecting and reviewing the most pertinent peer-reviewed literature, collecting the data that complied with qualitative method data collection rules and regulations, and accurately interpreting the data to achieve valid, reliable results that would withstand the test of time.

A fourth limitation of this study was the selection of participants due to the specific inclusion criteria that may have limited the recruitment of sufficient participants to reflect a rigorous representation of the targeted population. Transparency in the participants' responses could have constituted a limitation due to their personal biases in formulating their answers to the interview questions. To overcome those limitations, I focused on building trust between the participants and myself to obtain genuine and objective answers from the interviews (Merriam & Tisdell, 2015).

Recommendations

This qualitative study aimed to explore the views of Metaverse experts on how business leaders and policymakers may collaborate to design a governance framework for a safe, viable, and inclusive Metaverse ecosystem. This study's results confirm previous studies' findings (Dwivedi et al., 2022; Zallio & Clarkson, 2022) and provide critical insights into how business leaders and policymakers may collaborate to shape governance for the Metaverse.

My research findings offered insights from Metaverse experts on how business leaders and Metaverse experts can collaborate to design a viable governance framework

for the Metaverse. While the scope of this study was limited to describing the views of Metaverse experts on how business leaders and policymakers may collaborate to design a governance framework for the global Metaverse, the findings helped expand this study's conceptual framework and usefulness for practice as well as identify areas of future research.

Recommendations for Scholarly Research

The Metaverse as a research topic is relatively new. That is why there are abundant opportunities for future research on the topic. This research study represents a small contribution to understanding this critical phenomenon that will shape the future of humanity. This exploratory multiple case study has implications for future research that will extend the study's conceptual framework and usefulness for practice. An immediate research agenda involves five areas of inquiry: (a) governance framework models for the Metaverse, (b) privacy and data security and protection in the Metaverse, (c) jurisdictional interoperability, (d) the facilitation of collaboration among the different stakeholders in the Metaverse, and (e) replication of this study with larger sample sizes or different stakeholder groups.

A primary aim of future research might involve developing a body of research on how Metaverse stakeholders can collaborate to develop an optimal governance model for the global Metaverse. The governance frameworks of the current Metaverse ecosystem consist of the use of End User License Agreements (EULA) and terms of service (ToS) (De Zwart, 2010). However, blockchain technology innovation has enabled the emergence of DAOs with decentralized governance structures that promote all users'

participation. The participants of this study proposed several governance models ranging from fully decentralized to completely centralized. More qualitative and quantitative studies should be conducted to analyze the different governance models, provide more clarity on the advantages and shortcomings of each, and propose a way forward on how stakeholders can work together and combine the strengths of the different approaches to sketch the contours of the optimal governance model for the global Metaverse.

Another direction for further research involves conducting more studies on privacy and data security and protection in the Metaverse. Metaverse experts have emphasized the importance of privacy and data security for the success of the Metaverse (Chen, 2022; Di Pietro & Cresci, 2021; Dwivedi et al., 2022; Fernandez & Hiu, 2022). The study participants insisted on the crucial nature of ensuring the privacy of Metaverse users and the protection and security of the data generated in the Metaverse to realize the vision of the Metaverse successfully. Conducting more studies in this important and sensitive area will advance scholarships and help security experts and business leaders gain knowledge that will allow them to develop and implement the proper security guardrails that will make the Metaverse a safe and secure environment for all stakeholders. Areas of inquiry may include the safety of data collected through HMDs used to access the data, the privacy and security of the user-generated data, the security of the networks, the mental health implication of being in the Metaverse, and the security risks associated with the use of AI and ML.

Metaverse experts anticipate that establishing which jurisdiction should take precedence in the event of a violation, such as crime or sexual harassment in the

Metaverse, will be one of the most difficult challenges to solve for the governance of the

Metaverse (Fernandez & Hui, 2022; Zallio & Clarkson, 2022). Research participants

have recommended the establishment of a governance framework that will be applicable

across jurisdictions. More studies should be conducted to explore the different layers of

complexity involved in achieving jurisdictional interoperability, including the

considerations of the different stakeholders' locations, countries of origin, and cultural

backgrounds. One aspect of that research agenda should focus on the international aspect

of the jurisdictional interoperability challenge, especially given the current level of

geopolitical tensions worldwide.

The participants in this research identified collaboration among all Metaverse

stakeholders as crucial to achieving a fully functioning Metaverse. Although this research

contributed original qualitative data to the Metaverse scholarship, its impact may be

limited by its scope. Future similar studies need to be conducted to understand how all

the stakeholders in the Metaverse can collaborate to design a viable governance

framework. For example, future studies may focus on the role of governments, civil

society, and multinational organizations in shaping the governance framework for the

Metaverse. Additional research studies could focus on evaluating the effectiveness of

current Metaverse collaboration initiatives such as the ones from the World Economic

Forum and Meta.

In this study, I described the views of Metaverse strategy and innovation

management experts on how business leaders and policymakers may collaboratively

develop a governance structure for the Metaverse. The results of the study were limited to

business leaders and policymakers. Another limitation of this study was that the data were collected from only eight Metaverse experts. Future studies may focus on replicating this study using a larger sample, a different population, or by focusing on other key stakeholder groups in the Metaverse.

Recommendations for Policy and Practice

Establishing an ethical framework for the governance of the Metaverse is essential for the realization of the vision of the Metaverse. This study contributed practical knowledge that will inform business leaders and policymakers on collaborating to shape a governance framework for Metaverse. Based on the findings of this research, I propose the following four professional practice and policy recommendations that will contribute to forging a governance framework that will help regulate the Metaverse in the future.

- **Reconfiguring business models and operational capacities to prosper the Metaverse.** The digital transformation necessary to be Metaverse-ready will require mobilizing all operational resources and capabilities. That is why establishing a presence in the Metaverse is rapidly becoming necessary regardless of which sector or industry one currently operates. Doing so will significantly affect the role and responsibilities of business leaders. Business leaders should start thinking about doing the following:
  o Develop a strategic plan to define how to *Metaverse -ize* their businesses.
  o Build the IT infrastructure needed, including hardware, software, and network capabilities.

o Develop a plan for upskilling the entire workforce, including the executive team, and hiring people with new Metaverse-specific specialized skills, such as those related to 3D modeling.

o Establish the means to perform the following functions in the Metaverse: recruitment, training, onboarding, communication, digital marketing and value proposition to the customer, payment processing using blockchain technology and cryptocurrencies, and compliance with rules and regulations.

o Open a space in one of the current virtual worlds as the fashion house Gucci did recently when it opened a front store in the Roblox metaverse.

o Create the Digital Twin version of their businesses.

o Start developing policies and procedures to regulate how their employees, customers, and business partners should behave in the Metaverse, how to protect and preserve the data generated on their platforms, and how to protect their employees' and customers' privacy and security.

- **Business leaders and policymakers must take a proactive approach to achieving a diverse and inclusive Metaverse.** Researchers and experts have touted achieving a diverse and inclusive Metaverse as a fundamental goal (Bibri, 2022; Floridi, 2022; Fernandez & Hui, 2022). The findings of this study highlighted the importance of diversity and inclusiveness to the overall viability of the Metaverse. All stakeholders must do their part to achieve the goal of a diverse and inclusive Metaverse.

Business leaders, especially those overseeing the companies building

the Metaverse, must first incorporate diversity and inclusion. That includes

making sure that the teams that are building the codes are diverse, establishing

mechanisms to audit the AI and ML to detect biases that may harm Metaverse

users and lead to unwanted consequences, ensuring that the cost of Metaverse

devices is not prohibitive as to create barriers to entry, and ensuring the data

collected from users is safe.

Policymakers also have a vital role in ensuring the Metaverse is

diverse and inclusive. Policymakers need to educate themselves about the

Metaverse to determine if current anti-discrimination laws in the real world

can be applied in the Metaverse. In addition, policymakers need to anticipate

the risks associated with the Metaverse and take proactive measures to enact

effective and proportional regulations that will ensure diversity and inclusion

in the Metaverse, including clear and specific enforcement mechanisms that

address the jurisdictional challenges.

- **Policy Makers to Promote Digital/Metaverse Literacy.** Despite the

  considerable hype and substantial interest in the promise of the Metaverse,

  some Metaverse experts believe governments are still not well informed about

  the Metaverse and must be educated first before enacting any regulations

  about the Metaverse (De Zwart & Lindsay, 2010; Dwivedi et al., 2022). Study

  participants remarked that for the promise of the Metaverse to be realized,

  policymakers, educational systems leaders, and other stakeholders must be

involved to prepare the populations worldwide to navigate the Metaverse environment adequately. Regulators and policymakers across the globe need to:

o Educate themselves to better understand the current Metaverse ecosystem and the vision of the Metaverse before enacting all-encompassing rules that could stifle innovation, hinder creativity, and negatively impact the users' overall experience.

o Establish national strategies for the adoption of the Metaverse innovation.

o Incorporate Metaverse education in all national education systems worldwide, including primary, secondary, and tertiary.

o Work with all stakeholders, including local, state, and federal governments, private sectors, and civil society, to determine the competencies needed to function correctly in the age of the Metaverse and develop curriculums accordingly.

- **International regulatory framework to institute the legal and regulatory basis for the global Metaverse governance structure.** Given the complex nature of the Metaverse endeavour, stakeholders should consider the development of initiatives that will allow them to collaborate to achieve a governance framework that will be functional and acceptable to all parties. To achieve that, they may consider creating an international body similar to the United Nations that will be given the authority to achieve a consensus on the vision of the Metaverse, develop the standards to harmonize the construction

of the Metaverse, draft the policies that will govern the Metaverse, tackle the jurisdictional interoperability challenge, develop conflict resolution mechanisms, and institute the mechanisms of international cooperation within the Metaverse.

Implications

Implications for Positive Social Change

This study addressed a significant gap in the literature on empirical research on how business leaders and policymakers may collaborate on a governance framework to launch an inclusive and safe metaverse strategy to support the future of business innovation (see Bibri, 2022; Schmitt, 2022). This study contributes to positive social change and the management field by presenting practical information on developing a governance framework to regulate the Metaverse ecosystem of the future.

Conducting empirical research on the Metaverse's ethical challenges helped drive positive social change by raising awareness of how the Metaverse can keep from repeating the abuses and injustices of AI and the social media era (Entsminger et al., 2022; Zhang, 2022). The role of AI and ML in powering the Metaverse is mainly positive (Lim et al.,2022; Schmitt, 2022). Some of the positive aspects of AI include Deep Learning applications in digital twins, computer agents, the autonomy of the avatar (Schmitt, 2022), and the enhancement of user experience by allowing efficient object rendering, intelligent chatbots, and user-generated content (Lim et al., 2022).

However, many researchers and experts have expressed concerns about the bias embedded in the algorithms and how it could lead to severe discrimination against

avatars based on race, gender, physical and mental condition, and other perceived

characteristics (Ferrer et al., 2021). Participants in this study highlighted the importance

of putting humans at the center of managing the AI used to power the Metaverse.

Research participants proposed placing governance in the software to avoid "a

determinism to the point that we have a large dependency on the autonomy of the

algorithms, but one where we have human discretion beyond scrutiny." They advocated

for placing "humans in the loop" to help analyze the algorithm's bias and prevent a de

facto "digital redlining."

This study also contributes to positive social change by raising the issues of

inclusiveness and access to the Metaverse. The study's participants insisted that any

governance framework of the Metaverse must include policies that will ensure the

Metaverse will be an inclusive place open to all users. For example, research participants

remarked that Metaverse builders need to focus on ensuring that the teams building the

Metaverse are diverse and on removing any barriers to access to the Metaverse such as

the cost of XR technologies not representing a barrier to entry to the Metaverse.

Implications for Practice and Policy

The Metaverse is a new phenomenon in its early developmental stages (Deloitte,

2022). The Metaverse faces many challenges of sociotechnical and governance in nature

(Fernandez & Hui, 2022 Floridi, 2022). These findings have implications for professional

practice and policy by providing practical knowledge to inform business leaders and

policymakers on collaborating to shape a governance structure for Metaverse (Fernandez

& Hui, 2022; Signe & Dooley, 2022).

The findings of this study suggest that the Metaverse is considered the new technology platform that will shape the future of business innovation. Business leaders can use this knowledge to develop strategies to help them take advantage of Metaverse's immense possibilities. Some sectors anticipated to benefit from the Metaverse innovation include digital marketing, tourism, manufacturing, operations management, education, the retail industry, banking services, healthcare, and human resource management (Koohang et al., 2023). Several companies, from Meta to Microsoft to Roblox have started to invest in the Metaverse to position themselves to be critical players in the Metaverse (Lin et al., 2022).

These findings also suggest that policymakers will be better served by starting to work on designing policies that will facilitate the development of the Metaverse and regulate some of the current and anticipated insidious consequences of the Metaverse without stifling innovation. These policies should focus on facilitating investment in the Metaverse and Metaverse-related industries, promote education about the Metaverse, regulate the behaviors of participants, address the psychological consequences of the blurring of the lines between the virtual and the real world, and mandate the security of user-generated data and the safety and privacy of Metaverse users.

Another policy and practice implication of this study's findings is related to the necessity for policymakers and business leaders to collaborate to achieve a governance framework for the Metaverse. The vision of the Metaverse of an interoperable, persistent real-time rendered 3D virtual world accessible by an unlimited number of users and with a sense of presence and continuity of data (Ball, 2022) is a complex and challenging

undertaking to achieve. No company, government, or entity will be able to build the

Metaverse independently. That is why all stakeholders must work together to overcome

daunting challenges, including safety and privacy (Ning et al., 2022) and technological

challenges (Ball, 2022; Hackl et al., 2022), legal and ethical challenges (Beioley, 2022;

Garon, 2022; Mystakidis, 2022), and governance-related challenges (Dwivedi et al.,

2022; Fernandez & Hui, 2022).

Several initiatives, including from the World Economic Forum (World Economic

Forum, 2023) and Meta (Bowles, 2022), have been launched to promote cooperation

among Metaverse stakeholders to achieve the shared vision of the Metaverse and develop

standards for the Metaverse. While these initiatives are laudable and represent an

excellent first step to tackling this complicated and arduous undertaking, more remains to

be done on the collaboration front. Given the complexities involved in the development

and governance of the Metaverse, the participation of governments, nations, and

multinational organizations is crucial to increase the odds of achieving a fully functioning

Metaverse.

The study's findings also suggest that privacy and data security and protection are

critical success factors for any governance framework for the global Metaverse. The

implication for practice and policy is considerable. In practical terms, it means that data

security and privacy considerations should be addressed at all levels of the design of the

Metaverse by different stakeholders ranging from XR device manufacturers to platform

designers and developers to third-party apps and service vendors (Gupta et al., 2023).

Regarding policy implications, regulators and policymakers need to enact laws to protect

user-generated data and the safety of Metaverse users. Policymakers must determine to what extent current law in the real world may be applicable in the Metaverse, resolve the jurisdictional operability challenge, and ensure the regulation of the Metaverse will constantly keep up with the rapidly evolving technologies that are powering the Metaverse. The recent enactment of the California Consumer Privacy Act (CCPA) in California and the General Data Regulation Protection (GDPR) in the European Union are encouraging signs that need to be emulated (Fernandez & Hiu, 2022; Zallio & Clarkson, 2022).

The findings of this study suggest that the builders of the Metaverse need to ensure that the Metaverse will be an inclusive place from its inception phase. The findings of this study build on the work of Zallio and Clarkson (2022), whose study results indicated the need for all stakeholders to collaborate to create good practices for designing an inclusive, accessible, safe Metaverse that guarantees equity and diversity. Practically, inclusiveness must be a priority from the beginning, including during the design phase of the Metaverse. For example, the lack of diversity among the builders of the Metaverse may affect the diversity in the experiences being created in the Metaverse. According to McKinsey & Company (2022), "Today, fewer than a third of creators of interactive experiences are women" (p. 52). Regulators and policymakers need to work on enacting policies that will remove barriers, including financial barriers, protect vulnerable and marginalized groups, regulate misbehavior, including harassment and discrimination, and avoid repeating the errors of Web 2.0, the internet, and the social media era.

Implications for Theory

Innovation management and strategy scholars have identified a significant gap in the literature on empirical research on how business leaders and policymakers may collaborate on shaping a governance structure for Metaverse (Bibri, 2022; Schmitt, 2022). The extensive literature review of this study helped me learn from theoretical works from the emerging literature on the nature of the Metaverse. This research made a significant contribution to the scholarship on the Metaverse. It filled a gap in the theoretical and empirical literature by presenting original data allowing business leaders and policymakers to develop collaboration strategies to design a governance framework for a safe, inclusive, and viable Metaverse ecosystem.

In its current form, the Metaverse is composed mainly of gaming platforms and virtual worlds (De Zwart & Lindsay, 2012). Success of the Metaverse will depend on the adoption rate by stakeholders in all sectors of the economy in the real world. This study was framed by three key concepts that are aligned with the purpose of the study, which was to describe metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation): (a)) Rogers's (1995) concept of *diffusion of innovations*, (b) Ball's (2022) concept of *The Metaverse*, and (c) Fernandez & Hiu's (2022) concept *of privacy, ethics, and governance in The Metaverse*

Considering that one of this study's overarching objectives is to generate original theoretical or conceptual framework contribution, the use of multiple case study, a design

recognized to establish or extend theory (Eisenhardt & Graebner, 2007), allowed for an

in-depth understanding of the phenomenon and helped answer the researcher question. In

addition, the chosen design helped mitigate the limitations associated with qualitative

research and ensured the study's trustworthiness (Marriam & Tisdell, 2015; Yin, 2017).

The inductive data analysis methodology enabled the emergence of themes that furthered

the understanding of the phenomenon (Yin, 2017). As a result, the perspectives of the

Metaverse experts interviewed in this study helped to drive recommendations for future

theoretical research (Yin, 2017).

This study contributes to theory extension by contributing original qualitative data

that will help policymakers and business leaders develop collaboration strategies to shape

a governance framework for a safe, inclusive, and viable Metaverse. In addition, the

findings of this study have implications for theory extension by demonstrating how

Rogers's (1965) diffusion of innovation theory helped explain the Metaverse

phenomenon.

Conclusions

This research addressed a gap in the literature on empirical research on how

business leaders and policymakers may collaborate on a governance framework to launch

an inclusive and safe Metaverse strategy to support the future of business innovation

(Bibri, 2022; Schmitt, 2022). The participants in this study provided valuable input that

can inform business leaders, policymakers, and other stakeholders on how to develop

policies for the governance framework of the global Metaverse. The study participants

provided insight into the essential nature of collaboration among Metaverse stakeholders for successfully realizing the Metaverse.

The multiple case study design helped explore the participants' views, generate rich data from eight Metaverse experts through semistructured interviews, and allowed for data triangulation to answer the primary research question of this study. The systematic data analysis performed by combining ground up and cross-case synthesis techniques helped generate 12 themes and the following four essential categories: (a) the Metaverse shaping the future of business innovation, (b) business leaders and policymakers collaborating on shaping a governance framework for the Metaverse, (c) privacy and data security and protection, and (d) a safe and inclusive Metaverse for business innovation.

This study contributes to positive social change and the management field by presenting practical information on developing a governance framework to regulate the Metaverse. The findings of this study have implications for professional practice and policy by providing practical knowledge to inform business leaders and policymakers on how to collaborate on shaping a governance framework for the Metaverse. The findings of this study imply theory extension by demonstrating how Rogers's (1965) diffusion of innovation theory helped explain the Metaverse phenomenon and by contributing original qualitative data that will help policymakers and business leaders develop strategies for collaborating to shape the governance framework for the Metaverse.

The use of the qualitative method approach to answer the research question was a limitation that prevented the generalizability of this study. Another limitation of this

study was related to overcoming my role as the instrument of the research. Another limitation was the inclusion criteria that limited the recruitment of sufficient participants to represent the targeted populations accurately. The scarcity of research on the Metaverse, and more specifically, the governance framework of the Metaverse, represented a challenge that limited this research study.

Despite these limitations, the depth of the responses collected from the interview of the Metaverse experts allowed the development of data analysis that helped emerge themes that illuminated the understanding of the topic, helped fill the gap in the literature, and answered the primary research question of this study, which was as follow: How do metaverse strategy and innovation management experts describe their views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation? The findings of this study helped expand this study's conceptual framework and usefulness for practice and identify areas of future research.

Future research might focus on identifying an optimal governance model for the global Metaverse, given the technological, sociological, and geopolitical challenges involved in the development of the Metaverse. Future research may also focus on expanding the findings of this research by replicating this study with larger sample sizes, selecting a different population, or adding other key stakeholder groups. In addition, further research may include examining an analysis pertinent to Metaverse experts' knowledge supporting the importance of privacy and data security and protection in the

development of the Metaverse and identifying governance frameworks that apply across jurisdictions.

Several strategies helped enhance the validity and trustworthiness of the study, including conducting member checks, continuing data collection until I reached data saturation, establishing an audit trail, and using data triangulation. I also engaged in researcher reflexivity and used thick descriptions of the research setting. I linked the collected data to the research question and the study's conceptual framework during the data presentation and analysis and ensured that the data analysis stayed within the confines of the study's conceptual framework.

As discussed throughout this study, the Metaverse is a bold vision with profound transformative effects on how humans live, work, communicate, and entertain themselves. As of the completion of the study, there is still no consensus on a single vision of the final version of the Metaverse. Regardless, the vision of the Metaverse as a combination of persistent, interoperable, time-rendered, immersive 3D virtual worlds with a nearly infinite number of users will not be possible without a robust governance framework that will ensure the safety and security of users, accountability, diversity, inclusiveness, and drives business innovation. The findings of this study contributed to laying the foundation for defining that governance framework.

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Appendix A: Social Media Post

Hello,

I am a doctoral student at Walden University, and I invite you to participate in my research study. The study involves taking part in a 30 to 45-minute interview.

The purpose of this qualitative, multiple case study is to describe metaverse strategy and innovation management experts' views on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation.

This study is important as the results may inform business leaders and policymakers on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation. In addition, the findings of this study will contribute to the scholarship on the Metaverse and theory extension by contributing original, qualitative data to address a significant gap in the literature on empirical research on how business leaders and policymakers may collaborate on a governance framework to launch an inclusive and safe metaverse strategy to support the future of business innovation. Finally, conducting empirical research on the Metaverse's ethical challenges may drive positive social change by raising awareness of how this new digital domain can keep from repeating the abuses and mistakes of AI and social media identified over the last 15 years by technology and futurist scholars.

Please review the consent form attached to this letter. If you feel you understand the study and wish to volunteer, please indicate your consent by replying to this email with the words, "I consent." If have questions about this study or need additional information, you may reply to this email. Thank you in advance for your consideration.

Respectfully,
Hamady Dia (Researcher)
Ph.D. Candidate – Walden University

Appendix B: The Interview Protocol

<u>Researcher to Participants Prologue:</u>

Thank you so much for agreeing to participate in this study. I will begin the interview by asking the demographic question to ensure you qualify to participate in the study. In the interview, I will ask you about your expert opinion on how business leaders and policymakers may collaborate on shaping a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation.

Periodically I may ask clarifying questions or encourage you to describe in more detail. You are invited to elaborate on where you feel comfortable and decline to do so when you do not have additional information. If you need clarification from me, please ask.

<u>Demographics will only be used for statistical purposes in aggregate form</u>
Number identifier: _____
Age: _____
Highest level of education_____
Published articles on policy reports on the issue of developing a Metaverse ecosystem for organizations Metaverse governance framework development; and Metaverse security/privacy concerns: _____
Possess in-depth expert knowledge of the Metaverse? _____

From Research to Participants: *As a prologue to my questions and so that you may gain greater clarity on the nature of my study, I would like to define some commonly used terms you'll hear in the interview questions.*

The goal of conducting my research on the Metaverse's ethical challenges is that the study results may continue to a growing body of literature on preventing the digital domain from repeating the abuses and injustices of artificial intelligence and social media in the past decade. Despite these growing ethical challenges, business leaders and policymakers still cannot agree on a governance framework for the Metaverse raising new questions of governance, access, ethics, and security. Corporate leaders may fear metaverse applications because of security issues leading to exposure to accusations of unethical corporate behavior.

Beyond assumed fears of working in the Metaverse, initial users report exposure to offensive and undesirable behaviors, harassment of users, unregulated gambling, sexualization of avatar interactions, and personal data exploitation. While the Metaverse is still in the infancy of its development, and there is a lack of practical information on how business leaders and policymakers may shape a governance framework for a commercially successful, inclusive, and safe metaverse ecosystem to drive future business innovation.

Are we ready to begin?

1. What do you believe will be the overall role of the Metaverse in shaping the future of business innovation?
2. How can business leaders and policymakers collaborate on shaping a governance framework for a commercially successful metaverse ecosystem?
3. A recently published business report highlighted the critical concerns amongst internet users worldwide with working within metaverse applications, including addiction to simulated reality, privacy, and mental health issues. Beyond assumed fears of working in the Metaverse, initial users report exposure to offensive and undesirable behaviors, harassment of users, unregulated gambling, sexualization of avatar interactions, and personal data exploitation. How would you describe the critical success factors needed to shape a governance framework for a safe metaverse ecosystem?
4. How would you describe the critical success factors needed to shape a governance framework for an inclusive metaverse ecosystem that does not shut out or harm vulnerable social groups?
5. Given your years of professional experiences as a strategy and innovation management professional, what further thoughts can you offer on how business leaders and policymakers may overcome challenges in shaping a governance framework to regulate the Metaverse across industry sectors?

Probes to facilitate conversations around the facts:
   "*Can you give me an example of that?*"
   "*Please tell me more about that.*"
Researcher to Participant Epilogue:
I cannot thank you enough for your time and attention during this interview. I will be conducting interviews with other Metaverse experts. You will receive a copy of your interview transcript to check for the accuracy of your narratives.
 The answers to all participant interviews will be combined for analysis and report. Nothing you said will be ever identified with you personally.
Thank you for your participation.